David A. Bader

Distinguished Professor
Director, Institute for Data Science
Ying Wu College of Computing
New Jersey Institute of Technology

Recent National Leadership:

- Advisory roles to White House, NSA, NSF, DARPA
- Board Member, Computing Research Association
- Chair, NSF Committee of Visitors for OAC
- NSF Advisory Committee on Cyberinfrastructure
- Council on Competitiveness HPC Advisory Committee
- IEEE Computer Society Board of Governors
- Editor-in-chief, ACM Trans. on Parallel Computing
- Editor-in-chief, IEEE Trans. on Parallel and Distributed Systems

Award Highlights:

- Fellow: IEEE, ACM, AAAS, SIAM
- IEEE CS Sidney Fernbach Award
- University of Maryland's Innovation Hall of Fame
- Best Paper Awards: ISC, IEEE HPEC, IEEE/ACM SC
- IEEE CS Golden Core Member Award
- University of Maryland, ECE Distinguished Alumni Award
- Georgia Tech Outstanding Senior Faculty Research Award

David A. Bader is a Distinguished Professor and founder of the Department of Data Science and inaugural Director of the Institute for Data Science at New Jersey Institute of Technology. Prior to this, he served as founding Professor and Chair of the School of Computational Science and Engineering, College of Computing, at Georgia Institute of Technology.

Dr. Bader is a Fellow of the IEEE, ACM, AAAS, and SIAM; a recipient of the IEEE Sidney Fernbach Award; and the 2022 Innovation Hall of Fame inductee of the University of Maryland's A. James Clark School of Engineering. He advises the White House, most recently on the National Strategic Computing Initiative (NSCI) and Future Advanced Computing Ecosystem (FACE). Bader is a leading expert in solving global grand challenges in science, engineering, computing, and data science. His interests are at the intersection of high-performance computing and real-world applications, including cybersecurity, massive-scale analytics, and computational genomics. Dr. Bader has co-authored over 400 scholarly papers, h-index of 66, and has best paper awards from ISC, IEEE HPEC, and IEEE/ACM SC. Dr. Bader has served as a lead scientist in several DARPA programs including High Productivity Computing Systems (HPCS) with IBM, Ubiquitous High Performance Computing (UHPC) with NVIDIA, Anomaly Detection at Multiple Scales (ADAMS), Power Efficiency Revolution For Embedded Computing Technologies (PERFECT), Hierarchical Identify Verify Exploit (HIVE), and Software-Defined Hardware (SDH). Recently, Bader received an NVIDIA AI Lab (NVAIL) award, and a Facebook Research AI Hardware/Software Co-Design award.

Dr. Bader is Editor-in-Chief of the ACM Transactions on Parallel Computing and previously served as Editor-in-Chief of the IEEE Transactions on Parallel and Distributed Systems. He serves on the leadership team of Northeast Big Data Innovation Hub as the inaugural chair of the Seed Fund Steering Committee. In 2021, ROI-NJ recognized Bader on its inaugural list of technology influencers, and in 2012, Bader was the inaugural recipient of University of Maryland's Electrical and Computer Engineering Distinguished Alumni Award. In 2014, Bader received the Outstanding Senior Faculty Research Award from Georgia Tech. Bader has also served as Director of the Sony-Toshiba-IBM Center of Competence for the Cell Broadband Engine Processor and Director of an NVDIA GPU Center of Excellence. In 1998, Bader built the first Linux supercomputer that led to a high-performance computing (HPC) revolution, and Hyperion Research estimates that the total economic value of Linux supercomputing pioneered by Bader has been over $100 trillion over the past 25 years. The Computer History Museum recognizes Bader for developing the first Linux-based supercomputer which became the predominant architecture for all major supercomputers in the world. He is a cofounder of the Graph500 List for benchmarking "Big Data" computing platforms. He is recognized as a "RockStar" of High Performance Computing by InsideHPC and as HPCwire's People to Watch in 2012 and 2014.

In addition to founding NJIT's Department of Data Science and Georgia Tech's School of Computational Science and Engineering, Bader successfully launched Georgia Tech's Strategic Partnership Program in 2015, whose partners include Accenture, Booz Allen Hamilton, Cray, Ford Motor Company, IBM, Keysight Technologies, LexisNexis, Northrop Grumman, NVIDIA, and Yahoo; as well as the National Security Agency, Sandia National Laboratories, Pacific Northwest National Laboratory, and Oak Ridge National Laboratory. In 2021, Bader established an advisory board for the NJIT Institute of Data Science including: Accenture Labs, ADP, Alfred P. Sloan Foundation, Amazon, Bayer, BlackRock AI, Cherre, Citibank, Google, IBM, Maersk, Microsoft Research, NEC Labs, New York Times, NVIDIA, Prudential Financial, Stanley Black & Decker, UPS, and Yahoo Research.

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EDUCATIONAL BACKGROUND

Degree	Year	University	Field
Ph.D.	1996	University of Maryland	Electrical Engineering Major: Computer Engineering Minor: Communications and Signal Processing
M.S.	1991	Lehigh University	Electrical Engineering
B.S., *Magna Cum Laude*	1990	Lehigh University	Major: Computer Engineering Minor: Applied Mathematics

EMPLOYMENT HISTORY

Title	Organization	Years
Distinguished Professor	Ying Wu College of Computing Department of Data Science (July 2021 - present) Department of Computer Science New Jersey Institute of Technology	7/2019–present
School Chair	College of Computing School of Computational Science & Engineering Executive Director of High-Performance Computing Georgia Institute of Technology	7/2014–6/2019
Professor	College of Computing Executive Director of High-Performance Computing School of Computational Science & Engineering Georgia Institute of Technology	1/2010–6/2019
Research Staff	Cyber Technology & Information Security Laboratory Georgia Tech Research Institute	8/2011–12/2013
Professor	College of Computing Executive Director of High-Performance Computing Computational Science & Engineering Division Georgia Institute of Technology	2/2008–12/2009

Title	Organization	Years
Associate Professor	College of Computing Executive Director of High-Performance Computing Computational Science & Engineering Division Georgia Institute of Technology	8/2005–2/2008
Associate Professor	ECE and Computer Science University of New Mexico	6/2003–7/2005
Regents' Lecturer	University of New Mexico	5/2001–7/2005
Assistant Professor	Computer Science University of New Mexico	4/2000–5/2003
Assistant Professor	Electrical and Computer Engineering University of New Mexico	1/1998–5/2003
NSF Research Associate	Institute for Advanced Computer Studies University of Maryland, College Park	6/1996–12/1997
NASA Graduate Fellow	Electrical Engineering University of Maryland, College Park	8/1992–5/1996
Research Assistant	NSF ATLSS Center Lehigh University	1990–91
NSF REU	Lehigh University	1989–90

I. TEACHING

A. Courses Taught

Semester/Year		Course	Number of Students	Comments
Spring 1998	ECE 509	Parallel Algorithms	11	U. New Mexico
Fall 1998	ECE 537	Foundations of Computing	6	U. New Mexico
Spring 1999	ECE 432	Introduction to Parallel Processing	26	U. New Mexico
Spring 1999	ECE 595	Special Topics in Parallel Processing	2	U. New Mexico
Fall 1999	ECE 537	Foundations of Computing	13	U. New Mexico
Spring 2000	ECE 509	Parallel Algorithms	18	U. New Mexico
Fall 2000	ECE 537	Foundations of Computing	25	U. New Mexico
Spring 2001	ECE 509	Parallel Algorithms	36	U. New Mexico
Fall 2001	ECE 537	Foundations of Computing	29	U. New Mexico
Spring 2002	ECE 509	Parallel Algorithms	58	U. New Mexico
Fall 2002	ECE 438	Computer Design	12	U. New Mexico
Fall 2002	ECE 637	Advanced Parallel Algorithms	8	U. New Mexico
Fall 2002	ECE 590	Graduate Seminar (coordinator)	38	U. New Mexico
Spring 2003	ECE 509	Parallel Algorithms	40	U. New Mexico
Fall 2003	ECE 438	Computer Design	40	U. New Mexico
Fall 2003	ECE 637	Advanced Cache-Aware Algorithms	8	U. New Mexico
Spring 2004	ECE 509	Parallel Algorithms	43	U. New Mexico
Fall 2004	ECE 538	Advanced Computer Architecture	14	U. New Mexico
Fall 2004	ECE 638	Advanced Parallel Algorithms	7	U. New Mexico
Spring 2005	ECE 509	Parallel Algorithms	32	U. New Mexico
Spring 2006	CS 6505	Computability, Algorithms, & Complexity	40	Georgia Tech
Fall 2006	CS 8803	Computational Sci. & Engr. Algorithms	55	Georgia Tech
Spring 2007	CS 8001	High Performance Computing Seminar		Georgia Tech
Spring 2007	CS 8803	Multicore Computing	15	Georgia Tech
Fall 2007	CSE 6140	Computational Sci. & Engr. Algorithms	52	Georgia Tech
Spring 2008	CSE 6220	High Performance Computing	30	Georgia Tech
Fall 2008	CSE 6140	Computational Sci. & Engr. Algorithms	50	Georgia Tech
Fall 2009	CS 4140	Computational Sci. & Engr. Algorithms	10	Georgia Tech
Fall 2009	CSE 6140	Computational Sci. & Engr. Algorithms	30	Georgia Tech
Fall 2010	CS 4140	Computational Sci. & Engr. Algorithms	13	Georgia Tech
Fall 2010	CSE 6140	Computational Sci. & Engr. Algorithms	43	Georgia Tech
Fall 2011	CS 4140	Computational Sci. & Engr. Algorithms	12	Georgia Tech
Fall 2011	CSE 6140	Computational Sci. & Engr. Algorithms	58	Georgia Tech
Fall 2012	CSE 8803	Massive Graph Analysis	17	Georgia Tech
Fall 2013	CX 4140	Computational Sci. & Engr. Algorithms	20	Georgia Tech
Fall 2013	CSE 6140	Computational Sci. & Engr. Algorithms	50	Georgia Tech
Spring 2019	CSE 6141	Massive Graph Analysis	38	Georgia Tech

Semester/Year		Course	Number of Students	Comments
Fall 2019	CS 644	Introduction to Big Data	45	NJIT
Spring 2020	CS 786	Real-World Graph Analytics	25	NJIT
Summer 2020	CS 644	Introduction to Big Data	31	NJIT
Fall 2020	CS 644	Introduction to Big Data	18	NJIT
Summer 2021	CS 644	Introduction to Big Data	12	NJIT
Fall 2021	CS 644	Introduction to Big Data	19	NJIT
Summer 2022	CS 644	Introduction to Big Data	23	NJIT
Fall 2022	CS 644	Introduction to Big Data	29	NJIT
Spring 2024	DS 642	Applications of Parallel Computing	18	NJIT

B. Continuing Education

- 1998 NSF Engineering Education Scholars Program, University of Wisconsin-Madison.
- 1998 Teaching-Wise Educational Workshop, University of New Mexico.
- 2000 American with Disabilities Act Training, "Access to Education," University of New Mexico.
- Scholarly Communication and the Common Good: A Symposium for the University of New Mexico's Academic Community, February 27, 2003.
- Faculty Scholarly Communication Symposium: Stewardship of the University Community's Knowledge-Base, March 12, 2004.
- 3rd Annual Scholarly Communication Symposium: Cultural Transformation of the University's Knowledge Base, March 3, 2005.
- Implicit Bias Training, Georgia Institute of Technology, 20 September 2017.

C. Curriculum Development

- Authored and spearheaded the creation of the **Master of Science (M.S.)** Degree Program in **Computer Engineering**, University of New Mexico. Program officially launched in Fall 2005.
- Created the **M.S.** and **Ph.D.** Degree Programs in **Computational Science & Engineering**, Georgia Institute of Technology. Programs officially launched in Fall 2008.
- Authored and spearheaded the creation of the **B.S.** Degree Program in **Data Science**, New Jersey Institute of Technology. Program officially launched in Fall 2021.
- Authored and spearheaded the creation of the **Ph.D.** Degree Program in **Data Science**, New Jersey Institute of Technology. Program officially launched in Spring 2023.

D. Individual Student Guidance

D.1. Postdoctoral Fellows Supervised

Tanya (Yonit) Berger-Wolf (PhD, University of Illinois, Urbana-Champaign), NSF Postdoctoral Research Associateship in Experimental Computer Science. Computational methods for controlled breeding programs and evolutionary trees reconstruction. 2002-2004.
Position: Director, Translational Data Analytics Institute, The Ohio State University.

Henning Meyerhenke (PhD, University of Paderborn, Germany).
Position: Professor, Computer Science, Humboldt-Universität zu Berlin, Germany. 2010-2011.

Yuzhong Sun (PhD, Chinese Academy of Sciences). Hybrid parallel algorithms for routing collective communications on SMP clusters. 1999-2000.
Position: Professor, Institute of Computing Technology, Chinese Academy of Sciences.

Tiffani L. Williams (PhD, Central Florida). Alfred P. Sloan Postdoctoral Fellowship in Computational Molecular Biology. 2001-2004.
Position: Teaching Professor, University of Illinois at Urbana-Champaign.

D.2. Postdoctoral Students Supervised

These Sandia National Laboratories technical staff members had previously earned Ph.D. degrees in science and engineering. They were competitively selected by Sandia National Laboratories to enter the Computational Science Retraining Program, an intensive training program to enable them to perform computational research. Bader supervised their program and their postdoctoral research and thesis.

James A. McCoy, Sandia National Laboratories Computational Science Retraining Program, Thesis: "Porting a parallel VHDL simulation environment to Sandia National Labs parallel computing platforms," 1998.

Michael Keenan, Sandia National Laboratories Computational Science Retraining Program, Thesis: "Multivariate Image Analysis Tools for Chemical Characterization," 1999.

Doug Wall, Sandia National Laboratories Computational Science Retraining Program, Thesis: "Improving the Performance of a Crevice Corrosion Code Using Space Iterative Methods and Parallelization," 2000.

David Beck, Sandia National Laboratories Computational Science Retraining Program, Thesis: "Evaluation and Characterization of Secure File Storage in Client Parallel I/O," 2000.

D.3. Ph.D. Students Supervised

Mi Yan. Graduation Date: January 2004.
Thesis Title: "High Performance Algorithms for Phylogeny Reconstruction with Maximum Parsimony"
Position: Future Technologies Solution Design Center, IBM Corp.

Guojing Cong, *with distinction*. Graduation Date: October 2004.
Thesis Title: "On the Design and Implementation of Parallel Algorithms for Graph Problems on Shared-Memory Machines."
Position: Advanced Computing Technologies Center, IBM T.J. Watson Research Center

Jinyang Liu. Graduation Date: October 2005.
Thesis Title: "Control and Noise Immunity of High Resolution Experiments on Earth Orbit."
Position: Janelia Farms Research Center, Howard Hughes Medical Institute

Matthew J. Sottile. Graduation Date: April 2006.
Thesis Title: "A Measurement and Simulation Methodology for Parallel Computing Performance Studies,"
Position: University of Oregon

Xuefei Wang Graduation Date: October 2007.
Thesis Title: "Hybrid Neuro-Fuzzy Inference Models for Outcome Prediction in Acute Leukemia Using Gene Expression and Covariate Data." (co-advised with S. Atlas)

Kamesh Madduri Graduation Date: July 2008.
Thesis Title: "A High-Performance Framework for Analyzing Massive Complex Networks."
Recipient of the College of Computing's 2008 Outstanding Graduate Research Assistant Award.
Position: Luis W. Alvarez Postdoctoral Fellowship in Computational Science, Lawrence Berkeley National Laboratory.

Virat Agarwal Graduation Date: June 2010.
Thesis Title: "Algorithm Design on Multicore Processors for Massive-Data Analysis."
Position: IBM T.J. Watson Research Center, Yorktown Heights, NY.

Seunghwa Kang Graduation Date: January 2011.
Thesis Title: "On The Design of Architecture-Aware Algorithms For Emerging Applications."
Position: Pacific Northwest National Laboratory.

David Ediger, Graduation Date: May 2013.
Thesis Title: "Analyzing Hybrid Architectures for Massively Parallel Graph Analysis."
Position: Georgia Tech Research Institute.

Zhaoming Yin, Graduation Date: May 2014.
Thesis Title: "Enhance the Understanding of Whole-Genome Evolution by Designing, Accelerating and Parallelizing Phylogenetic Algorithms."
Position: Oracle Corp.

Oded Green, Graduation Date: May 2014.
Thesis Title: "High Performance Computing for Irregular Algorithms and Applications with a Focus on Big Data Analytics."
Position: ArrayFire (Chief Operating Officer)

Adam McLaughlin, Graduation Date: Fall 2015.
Thesis Title: "Mapping Parallel Graph Algorithms to Throughput-Oriented Architectures."
Position: D.E. Shaw Research

James Fairbanks, Graduation Date: May 2016.
Thesis Title: "Graph Analysis Combining Numerical, Statistical, and Streaming Techniques."
Position: Georgia Tech Research Institute

Lluis Miquel Munguía, Graduation Date: December 2017.
Thesis Title: "High Performance Computing Algorithms for Discrete Optimization." (*2017 Best Dissertation Award, Georgia Tech College of Computing*)
Position: Google

Emily Rogers, Graduation Date: May 2018.
Thesis Title: "A Novel Method for Cluster Analysis of RNA Structural Data." (co-advised with Dr. Christine Heitsch)
Position: Georgia Tech Research Institute

Vipin Sachdeva, Graduation Date: May 2018.
Thesis Title: "Efficient Parallel Algorithms for Error Correction and Transcriptome Assembly of Biological Sequences."
Position: IBM

Anita Zakrzewska, Graduation Date: May 2018.
Thesis Title: "Graph Analysis of Streaming Relational Data."
Position: Trovares, Inc.

Eisha Nathan, Graduation Date: May 2018.
Thesis Title: "Numerical and Streaming Analyses of Centrality Measures on Dynamic Graphs."
Position: Lawrence Livermore National Laboratory

Oliver Alvarado Rodriguez, (B.S., William Patterson University)
Entered Fall 2020.

Fuhuan Li, (M.S., Rutgers University)
Entered Spring 2021.

Mohammad Dindoost, (M.S., Azad University, Iran)
(co-advised with Dr. Ioannis Koutis)
Entered Fall 2022.

Asha Saxena, (M.S., Southern Methodist University)
Entered Spring 2024.

D.4. M.S. Thesis Students Supervised

Ajith Kumar Illendula, June 2000, Thesis: "Efficient and Practical Parallel Algorithms for Ear Decomposition with Experimental Studies." Position: Intel Corp., Rio Rancho, NM.

Niranjan Prabhu, December 2000, Thesis: "Practical Parallel Algorithms for Cycle Detection in Planar Partitioned Digraphs." Position: Intel Corp., Chandler, AZ.

Vinila Yarlagadda, December 2000, Thesis: "Design of Practical Parallel Algorithms for Uniform-Memory Access Symmetric Multiprocessors." Position: Intel Corp., Chandler, AZ.

Bei Wang, Summer 2002, Thesis: "Modeling and Simulation of Optimization Problems in Landscape Ecology." Position: Ph.D. Program at University of Southern California.

Min Zhu, September 2002, Thesis: "Parallel Branch and Bound Algorithms with Experimental Studies on Shared Memory Multiprocessors." Position: Ph.D. Program in Mathematics, University of New Mexico.

Bhaskar Subramanian, *with distinction*, December 2002, Thesis: "Automated Synthesis of Pass Transistor Asynchronous Sequential Circuits," Position: Sun Microsystems.

Zhan Li, December 2002, Thesis: "Parallel Algorithms for Uniform-Memory-Access Shared Memory Multiprocessors," (co-advised with B. Moret). Position: Bioinformatics Lab, Penn State University.

Sukanya Sreshta, *with distinction*, December 2003, Thesis: "Designing Parallel Graph Algorithms for Symmetric Multiprocessors." Position: OpNet Technologies, Bethesda, MD.

Meenakshi Balasubramanian, July 2005, Thesis: "Design and Implementation of Scalable Synthetic Compact Application (SSCA) Graph Theoretic Benchmark using Unified Parallel C (UPC)." Position: Merrill Lynch, New York.

Eswaramoorthi Nallusamy, October 2005, Thesis: "A Framework for Using Processor Cache as RAM in LinuxBIOS on x86 Cluster," Position: Intel Corp., DuPont, WA.

Vipin Sachdeva, *with distinction*, December 2005, Thesis: "High Performance Computing for Computational Biology and Graph Theory." Position: IBM Research, Austin Research Laboratory.

Sirisha Muppavarapu, January 2006, Thesis: "Analysis of A Sequence Alignment Problem Using Unified Parallel C (UPC)," Position: Intel Corp., Rio Rancho, NM.

Midhun Kumar Allu, Summer 2006, Thesis. (co-advised with E. Ritchie). Position: AT&T, New Jersey.

Rick Quax, July 2008, Thesis: "Modeling and Simulating the Propagation of Infectious Diseases using Complex Networks."

Amrita Mathuriya, December 2008. (joined Intel Corp., Beaverton, OR)

Prashant Gaurav, December 2011. (joined Groupon, Mountain View, CA)

Pushkar Pande, December 2011. (joined Risk Management Solutions, Newark, CA)

Pushkar Godbole, May 2016, Thesis: "Agglomerative Clustering for Community Detection in Dynamic Graphs." (joined Yelp)

Sanyamee Milindkumar Patel, December 2020, Thesis: "Accelerating Transitive Closure of Large-Scale Sparse Graphs."

Joseph Thomas Patchett, August 2022, Thesis: "Efficient and Scalable Triangle Centrality Algorithms in the Arkouda Framework."

D.5. M.S. Non-Thesis Students Supervised

Kavita Balakavi, Spring 1999. Position: Intel Corp., Beaverton, OR.

Sireesha Sankuratripati, *with distinction*, Summer 2001. Position: Intel Corp., Chandler, AZ.

Charan Donepudi, Summer 2001. Position: Intel Corp., Chandler, AZ.

Raghuram Mandiga, Summer 2001.

Ram Saran Attaluri, Spring 2002.

JingYi Dong, January 2003. Position: PhD Program, Georgia Institute of Technology.

Tu-Thach Ong, Fall 2003. Position: Sandia National Laboratories, Albuquerque, NM.

Prishanthy Wilson, Fall 2003. Position: Isochron Data Corporation, Austin, TX.

Susheel Kumar Puthana, Spring 2004. Position: Xilinx Corp., Colorado.

Vikas Chaudhary, Spring 2004. Position: PhD Program, Arizona State University.

Naren Khatwani, Spring 2023.

Shruti Krishnamurthy, Spring 2004.

Glenn Harper, Fall 2004.

Arun Illendula, Fall 2004.

Mallikarjun Komma, Fall 2004.

Rajendra Prasad Patil, Fall 2022.

Mehmet Fatih Su, Fall 2005. Position: PhD Program, University of New Mexico.

Sangeetha Illendula, Fall 2006. Position: Lumidigm Inc.

Sulabh Patel, Summer 2007. Position: Electronic Arts, Inc.

Manisha Gajbe Fall 2009.

Sainath Mallidi, December 2010.

D.6. Undergraduate Researchers

- Virat Agarwal (IIT-Delhi, 2004)
- Nitesh Agrawal (IIT-Roorkee, 2008)
- Vashinka Agrawal (NJIT, 2022-2023)
- Diana Aranda (NSF REU, 2002–2003)
- Troy Brant (Georgia Tech, 2006-2007)
- Warren Chancellor (Morehouse College, 2008)
- Gaurav Goel (IIT-Delhi, 2004)
- Sonny Hernandez (NSF REU, University of Southern California, 2007)
- Neha Jatav (IIT-Bombay, 2010)
- Letisha Kaskaske (NSF REU, 2002–2003)
- Michael Lee (Univ Maryland, Baltimore County, 2008)
- Jason Lew (NJIT, 2022)
- Angeline Madrid-Ritchey (NSF REU, 2002–2003)
- Kamesh Madduri (NSF REU, IIT-Madras, 2003-2004)
- Nadia Manoppo (NJIT, 2022)
- Nicholas Merryman (Georgia Tech, 2006)
- Danny Miller (Georgia Tech, 2006-2007), 2010 UROP Thesis
- Milan Kumar Mohapatra (IIT-Roorkee, 2010)
- Palina Pauliuchenka (NJIT, 2022-2023)

- Jose Mojica Perez (NJIT, 2022-2023)
- Emeline Picart (INSA, France, 2003)
- Joshua Rosillo (NJIT, 2022-2023)
- Abhishek Narian Singh (IIT-Delhi, 2004)
- Manoj Soni (IIT-Roorkee, 2008)
- Yamini Sridharan (IIT-Kharagpur, 2005)
- Nese Us (NJIT, 2022-2023)
- Laura Waymire (NSF REU, 2001–2003)

D.7. High School Interns

- Archisa Arora (Edison Academy Magnet School, Edison, NJ, Summer 2024)
- Pradipthi Bammidi (John P. Stevens High School, Edison, NJ, Summer 2024)
- Isabella Chang (Montgomery High School, Skillman, NJ, Summer 2024)
- Srijith Chinthalapudi (Edison Academy Magnet School, Edison, NJ, Summer 2024)
- Osman Duru (Churchville Chili High School, Churchville, NY, Fall 2022; joined University of Richmond)
- Anya Ganeshan (Bergen County Academies, Hackensack, NJ, Spring 2022-2023; joined Columbia University)
- Ahmet Gundogdu (Paramus High School, Paramus, NJ, Spring 2022-2023)
- Anant Gupta (John P. Stevens High School, Edison, NJ, Summer 2023; joined Rutgers University)
- Siya Gupta (John P. Stevens High School, Edison, NJ, Summer 2024)
- Berra Kalci (McLean High School, VA, Summer 2023; joined Purdue University)
- Arjun Khanna (Newark Academy, Newark, NJ, Summer 2022; joined Cornell University)
- Sai Sri Vastav Minnal (Edison Academy Magnet School, Edison, NJ, Summer 2023)
- Valmik Nahata (New Providence High School, New Province, NJ, Spring 2023)
- Dev Patel (Central Jersey College Prep Charter School, Somerset, NJ, Summer 2024)
- Anton Petushkov (Eastlake High School, Sammamish, WA, Summer 2021; joined University of Michigan)
- Anirudh Ramakrishnan (North Brunswick Township High School, NJ, Summer 2023)
- Vinuta Ramakrishnan (North Brunswick Township High School, NJ, Summer 2023)
- Vanessa Roseberry (Montgomery High School, Skillman, NJ, Summer 2023)
- Urja Saha (John P. Stevens High School, Edison, NJ, Summer 2024)

- Harinarayan Asoori Sriram (Edison Academy Magnet School, Edison, NJ, Summer 2024)
- Benjamin "Riley" Sytner (Bergen County Technical High School, NJ, 2020-2021; joined McGill University)
- Pranhav Sundararajan (Churchill High School, Livonia, MI, 2020-2021; joined Johns Hopkins University)
- Arda Tasci (Magnolia Science Academy, Santa Ana, CA, Summer 2023; joined New Jersey Institute of Technology)
- Marc Vaz (Middlesex County Academy for Science, Mathematics, and Engineering Technologies, Edison, NJ, Summer 2021; joined University of Pennsylvania)
- Vijay Ved (Montclair High School, Montclair, Essex County, NJ, 2021-2022)
- Nina Weiss-Bernstein (Santa Fe High School, Santa Fe, NM, 1999-2000; Ph.D. UNM, senior technical staff at Los Alamos National Laboratory) Mentored Ms. Nina Weiss-Bernstein in the Sandia National Laboratories "Adventures in Supercomputing" competition, where she won First Place for her project "Verification of the Theorems, Postulates, and Axioms of Boolean Switching Algebra." Also mentored Ms. Weisse-Bernstein in the LANL/NM-Technet Supercomputing Challenge, where she was awarded Honorable Mention, a cash prize of $200, the "Creativity and Innovation Award" from Sandia National Laboratories, and the "High Performance Computing Award" for the most computationally intensive application from SGI.
- Alissa Wu (Montgomery High School, Skillman, NJ, Summer 2021)

E. Teaching Honors and Awards

- *Thank a Teach* Certificate "in recognition for excellence in teaching," Center for the Enhancement of Teaching and Learning, Georgia Tech, 2008, 2009, 2017.

II. RESEARCH AND CREATIVE SCHOLARSHIP

A. Thesis

Ph.D. Thesis

Title: "On the Design and Analysis of Practical Parallel Algorithms for Combinatorial Problems with Applications to Image Processing"
Completed: May 1996
Advisor: Professor Joseph F. JáJá
University: The University of Maryland

B. Published Journal Papers (refereed)

1. "Scalable Data Parallel Algorithms for Texture Synthesis using Gibbs Random Fields," D.A. Bader, J. JáJá and R. Chellappa. *IEEE Transactions on Image Processing*, 4(10):1456-1460, October 1995.

2. "Parallel Algorithms for Image Histogramming and Connected Components with an Experimental Study," D.A. Bader and J. JáJá. *Journal of Parallel and Distributed Computing*, 35(2):173-190, 1996.

3. "Practical Parallel Algorithms for Personalized Communication and Integer Sorting," D.A. Bader, D.R. Helman, and J. JáJá. *ACM Journal of Experimental Algorithmics*, 1(3):1-42, 1996.

4. "Parallel Algorithms for Image Enhancement and Segmentation by Region Growing with an Experimental Study," D.A. Bader, J. JáJá, D. Harwood, and L.S. Davis. *The Journal of Supercomputing*, 10(2):141-168, 1996.

5. "A Randomized Parallel Sorting Algorithm With an Experimental Study," D.R. Helman, D.A. Bader, and J. JáJá. *Journal of Parallel and Distributed Computing*, 52(1): 1-23, 1998.

6. "A New Deterministic Parallel Sorting Algorithm With an Experimental Evaluation," D.R. Helman, J. JáJá, and D.A. Bader. *ACM Journal of Experimental Algorithmics*, 3(4):1-24, 1998.

7. "High Performance Computing Algorithms for Land Cover Dynamics Using Remote Sensing Data," S.N.V. Kalluri, J. JáJá, D.A. Bader, Z. Zhang, J.R.G. Townshend, and H. Fallah-Adl, *International Journal of Remote Sensing*, 21(6):1513-1536, 2000.

8. "SIMPLE: A Methodology for Programming High Performance Algorithms on Clusters of Symmetric Multiprocessors (SMPs)," D.A. Bader and J. JáJá. *Journal of Parallel and Distributed Computing*, 58(1):92-108, 1999.

9. "Kronos: A Software System for the Processing and Retrieval of Large-Scale AVHRR Data Sets," Z. Zhang, J. JáJá, D.A. Bader, S. Kalluri, H. Song, N. El Saleous, E. Vermote, and J. Townshend, *Photogrammetric Engineering & Remote Sensing*, 66(9):1073-1082, 2000.

10. "Cluster Computing: Applications," David A. Bader and Robert Pennington, *The International Journal of High Performance Computing*, 15(2):181-185, 2001.

11. "A Linear-Time Algorithm for Computing Inversion Distance Between Two Signed Permutations with an Experimental Study," D.A. Bader, B. M.E. Moret, and M. Yan, *Journal of Computational Biology*, 8(5):483-491, 2001.

12. "Generalized Block Shift Network for Clusters," Y. Sun, X. Lin, Y. Pan, R.W.H. Lau, D.A. Bader, and P.Y.S. Cheung, *IEEE Trans. Circuits and Systems I*, 49(4):543-546, 2002.

13. "High-Performance Algorithm Engineering for Computational Phylogeny," B. M.E. Moret, D.A. Bader, and T. Warnow, *The Journal of Supercomputing*, 22:99-111, 2002.

14. "A Framework for Measuring Supercomputer Productivity," M. Snir and D.A. Bader, *The International Journal of High Performance Computing Applications*, 18(4): 417-432, 2004.

15. "An Improved, Randomized Algorithm for Parallel Selection With an Experimental Study," D.A. Bader, *Journal of Parallel and Distributed Computing*, 64(9):1051-1059, 2004.

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F. Edited Proceedings

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G. Conference Presentations

G.1. Invited Keynote Addresses

110. "Using PRAM Algorithms on a Uniform Memory Access Shared-Memory Architecture," Sixth International Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS'01), San Francisco, CA, April 23, 2001.

111. "Massively Parallel Processing for Computational Genomics: Reconstructing Evolutionary Trees from Gene-Order Data," Second Workshop on Massively Parallel Processing (WMPP 2002), held in conjunction with *The International Parallel and Distributed Processing Symposium* (IPDPS 2002), Fort Lauderdale, FL, April 19, 2002.

112. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," *Workshop on Bioinformatics and Computational Biology* (BCB 2002), Bangalore, India, December 18, 2002.

113. "High-Performance Algorithm Engineering for Large-Scale Graph Problems and Computational Biology," D.A. Bader, *Proc. 4th International Workshop on Efficient and Experimental Algorithms (WEA)*, Santorini Island, Greece, *Lecture Notes in Computer Science*, 3503:16-21, May 2005.

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116. "Solving Massive Graph Problems using Petascale Computing," *The Ninth DIMACS Implementation Challenge: The Shortest Path Problem*, DIMACS Center, Rutgers University, Piscataway, NJ, November 14, 2006.

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118. "Petascale Computing for Large-Scale Graph Problems," *Eighth IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC-07)*, Long Beach, CA, March 30, 2007.

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121. "Petascale Phylogenetic Reconstruction of Evolutionary Histories," *3rd Annual High Performance Computing Day at Lehigh*, Lehigh University, Bethlehem, PA, April 4, 2008.

122. "Accelerators, Cell Broadband Engine, Graphics Processors, and FPGAs," *Los Alamos Computer Science Symposium*, (LACSS), Santa Fe, NM, October 14, 2008.

123. "Petascale Phylogenetic Reconstruction of Evolutionary Histories," *Symposium on Biomedical High Performance Computing*, CDC Biotechnology Core Facility, Atlanta, GA, October 23, 2008.

124. "Accelerating Applications with Cell Broadband Engine, Graphics, and Multithreaded, Processors," *SC08 Workshop on Bridging Multicore's Programmability Gap*, Austin, TX, November 11, 2008.

125. "Emerging Applications in Combinatorial Scientific Computing," presented at Combinatorial Scientific Computing, Seminar No. 09061, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, February 5, 2009.

126. "Accelerating Scientific Applications with Cell Broadband Engine Processor," presented at Carleton Cell BE Programming Workshop, Ottawa, Canada, May 13-15, 2009.

127. "Massive-Scale Graph Analytics," presented at Graph Search Engineering, Seminar No. 09491, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, December 1, 2009.

128. "Analyzing Massive Social Networks using Multicore and Multithreaded Architectures," presented at *Facing the Multicore Challenge*, Heidelberg Academy of Sciences, Heidelberg, Germany, March 17, 2010.

129. "Massive Scale Analytics of Streaming Social Networks," presented at the 6th Erlangen International High-End-Computing Symposium, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany, June 4, 2010.

130. "Multicore and Manycore Computing for Algorithm Engineers," presented at Algorithm Engineering, Seminar No. 10261, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, June 29, 2010.

131. "Petascale Computing for Computational Biology and Genomics," presented at the Information Science and Technology Center (ISTeC) distinguished lecture series, Colorado State University, Fort Collins, CO, October 4, 2010.

132. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at IBM Thomas J. Watson Research Center, IBM Research Spring Strategy Meeting, Yorktown Heights, NY, April 28, 2011.

133. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at The NSF Workshop on Data Intensive Computing, Graphs, and Combinatorics in Bio-Informatics, Finance, and National Security, The City University of New York, Staten Island, NY, July 26-27, 2011.

134. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at *The 9th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2011), Torun, Poland, September 11-14, 2011.

135. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at *Workshop on Parallel Algorithms and Software for Analysis of Massive Graphs* (ParGraph), Bengaluru, India, December 18, 2011.

136. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at *4th Georgia Scientific Computing Symposium*, Athens, GA, February 25, 2012.

137. "Opportunities and Challenges in Massive Data-Intensive Computing," Distinguished Lecture, University of Delaware, May 3, 2012.

138. "Opportunities and Challenges in Massive Data-Intensive Computing," From Data to Knowledge: Machine-Learning with Real-time and Streaming Applications, Berkeley, CA, May 8, 2012.

139. "Massive Data Analytics Using Heterogeneous Computing," 21st International Heterogeneity in Computing Workshop (HCW 2012), held in conjunction with *The International Parallel and Distributed Processing Symposium* (IPDPS 2012), Shanghai, China, May 21, 2012.

140. "Massive-scale Analytics on Big Data Platforms," presented at the National Security Agency, July 24, 2012.

141. "Massive-scale Graph Analytics," presented at *Conference on Scientific Computing* (ALGORITMY 2012), Vysoke Tatry, Podbanske, Slovakia, September 14, 2012.

142. "Opportunities and Challenges in Massive Data-Intensive Computing," Booz-Allen-Hamilton Distinguished Colloquium in Electrical and Computer Engineering, University of Maryland, September 28, 2012.

143. "Gathering Intelligence with Massive Graphs," Invited Talk, The 25th IEEE and ACM Supercomputing Conference (SC13), Denver, CO, November 19, 2013.

144. "Massive-scale Streaming Analytics," Keynote Talk, *The 21st Annual IEEE International Conference on High Performance Computing* (HiPC 2014), Goa, India, December 19, 2014.

145. "Massive-scale Streaming Analytics," presented at the *Triangle Computer Science Distinguished Lecturer Series*, University of North Carolina at Chapel Hill, North Carolina State University, and Duke University, February 2, 2015.

146. "Massive-scale Streaming Analytics," Keynote Talk, *International Opportunities in Cloud Computing and Big Data Seminar*, co-sponosored by the USA India Business Summit and Georgia Tech, Atlanta, GA, April 3, 2015.

147. "Massive-scale Streaming Analytics," Keynote Talk, *The 4th International Workshop on Parallel and Distributed Computing for Large Scale Machine Learning and Big Data Analytics* (ParLearning), Hyderabad, India, May 29, 2015.

148. "Massive-scale Graph Analytics," Keynote Talk, *11th International Conference on Parallel Processing and Applied Mathematics (PPAM)*, Krakow, Poland, September 6-9, 2015.

149. "Massive-scale Streaming Analytics," presented at the *3rd SIAM Workshop on Mining Networks and Graphs: A Big Data Analytics Challenge (MNG)*, held in conjunction with *SIAM International Conference on Data Mining (SDM)*, Miami, FL, May 7, 2016.

150. "Massive-scale Streaming Analytics," presented at the *Graph Algorithms Building Blocks (GABB 2016)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium (IPDPS 2016)*, Chicago, IL, May 23, 2016.

151. "Massive-scale Streaming Analytics," Invited Talk, *Chesapeake Large-Scale Analytics Conference*, Annapolis, MD, October 25-27, 2016.

152. "Massive-scale Streaming Analytics," Invited Talk, *The 21st Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 13, 2017.

153. "Massive-scale Streaming Analytics," presented at the *The 1st IEEE International Conference on Machine Learning and Data Science* (ICMLDS), Bennett University, Greater Noida, India, December 14, 2017.

154. "Massive-scale Streaming Analytics," 2018 Dr. Joseph E. Flaherty Seminar, Rensselaer Polytechnic Institute, Troy, NY, April 5, 2018.

155. "Massive-scale Analytics," Keynote Talk, 125th Anniversary of Electrical and Computer Engineering, Lehigh University, Bethlehem, PA, April 7, 2018.

156. "Massive-scale Analytics Applied To Real-World Problems," Keynote Talk, *The 5th ACM Platform for Advanced Scientific Computing Conference* (PASC), Basel, Switzerland, July 3, 2018.

157. "Massive-Scale Streaming Analytics: Models, Parallelsim, and Real-World Applications," Keynote Talk, *The 30th ACM Symposium on Parallelism in Algorithms and Architectures* (SPAA), Vienna, Austria, July 17, 2018.

158. "Predictive Analysis from Massive Knowledge Graphs with Neo4j," Invited Talk, *GraphConnect 2018*, New York, NY, September 20, 2018.

159. "Predictive Analytics from Massive Streaming Data," Keynote Talk, *The 44th Annual GOMACTech Conference: Artificial Intelligence & Cyber Security: Challenges and Opportunities for the Government*, Albuquerque, NM, March 26, 2019.

160. "Massive-scale Analytics," Keynote Talk, *13th International Conference on Parallel Processing and Applied Mathematics (PPAM)*, Bialystok, Poland, September 8-11, 2019.

161. "*Carnac the Magnificent* in the Age of High Performance Data Analytics," Keynote Talk, *Exploratory Analysis Summit*, Augusta, GA, November 7, 2019.

162. "Using Graphs to Enable National-Scale Analytics," Invited Talk, *Neo4j Connections, Graphs in Government*, September 15, 2020.

163. "Massive-scale Analytics," Keynote Talk, *20th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)*, New York, NY, October 2-4, 2020.

164. "New High Performance Graph Analytics Technique and a GPU Implementation," Invited Talk, *NVIDIA GPU Technology Conference (GTC) 2020*, October 7, 2020.

165. "Solving Global Grand Challenges with High Performance Data Analytics," Virtual ICM Seminars in Computer and Computational Science, *Supercomputing Frontiers Europe 2021*, January 29, 2021.

166. "Solving Global Grand Challenges with High Performance Data Analytics," DataYap Virtual Conference, April 17, 2021.

167. "Solving Global Grand Challenges with High Performance Data Analytics," Keynote Talk, 16th Conference on Computer Science and Intelligence Systems (FedCSIS), September 3, 2021.

168. "Solving Global Grand Challenges with High Performance Data Analytics," Distinguished Lecturer Talk, IEEE Computer Society Distinguished Lecturer Webinar Series, September 9, 2021.

169. "Graph Analytics in Arkouda," Chesapeake Large Scale Analytics Conference, October 6, 2021.

170. "Solving Global Grand Challenges with High Performance Data Analytics," *IEEE Computer Society Student & Young Professional Global Summit*, October 24, 2021.

171. "Solving Global Grand Challenges with High Performance Data Analytics," Keynote Talk, IEEE International Conference on High Performance Big Data and Intelligent Systems (HPBD&IS), Macau, China, December 5, 2021.

172. "Solving Global Grand Challenges with High Performance Data Analytics," Keynote Talk, 8th International Workshop on High Performance Big Graph Data Management, Analysis, and Mining (BigGraphs 2021) held in conjunction with 2021 IEEE International Conference on Big Data (IEEE BigData 2021), December 16, 2021.

173. "Solving Global Grand Challenges with High Performance Data Analytics," IEEE Distinguished Visitor Webinar, IEEE Sree Chitra Thirunal College Of Engineering (SCT) Student Branch, Kerala, India, (virtual), January 29, 2022.

174. "Solving Global Grand Challenges with High Performance Data Analytics," IEEE Mysore Subsection Webinar, Mysore, India, (virtual), February 24, 2022.

175. "Massive Dataset Analysis in Arkouda," Invited Talk, *Chesapeake Large-Scale Analytics Conference*, Annapolis, MD, October 26, 2022.

176. "Solving Global Grand Challenges with High Performance Data Analytics," Data Intensive Studies Center (DISC) Symposium, Tufts University, Medford, MA, April 21, 2023.

177. "Solving Global Grand Challenges with High Performance Data Analytics," Distinguished Lecturer Talk, IEEE Computer Society Distinguished Lecturer, IEEE Computer & Communications Joint Society in Northwest Florida, July 27, 2023.

178. "Solving Global Grand Challenges with High Performance Data Analytics," Distinguished Lecturer Talk, IEEE Computer Society Distinguished Lecturer, IEEE Southeastern Michigan CS Chapter, September 5, 2023.

179. "Solving Global Grand Challenges with High Performance Data Analytics," Massive Graph Analytics South West Meetup, UK, October 18, 2023.

180. "Solving Global Grand Challenges with High Performance Data Analytics," Computer Science Professional Society (CSPS), National Security Agency, October 26, 2023.

181. "Solving Global Grand Challenges with High Performance Data Analytics," IEEE Webinar, West Virginia University, February 5, 2024.

182. "Solving Global Grand Challenges with High Performance Data Analytics," 13th Annual Quinnipiac University Sigma Xi Conference, Hamden, CT, April 24, 2024.

183. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," Keynote Talk, The 21st Annual Workshop on Charm++ and Its Applications, University of Illinois Urbana-Champaign, April 26, 2024.

184. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," The 23rd International Symposium on Parallel and Distributed Computing (ISPDC), Chur, Switzerland, July 9, 2024.

185. "Solving Global Grand Challenges with High Performance Data Analytics," Annual Sigma Xi Meeting, Kansas State University, Manhattan, KS, October 8, 2024.

186. "The Future of Computing: High-Performance Computing and Quantum Integration for Massive-Scale Analytics," 2024 Women Leaders in Data and AI (WLDA) Annual Summit, New York, NY, November 15, 2024.

G.2. Conference Presentations with Proceedings (refereed)

187. "Parallel Algorithms for Image Histogramming and Connected Components with an Experimental Study," D.A. Bader and J. JáJá. *Fifth ACM SIGPLAN Symposium of Principles and Practice of Parallel Programming* (PPoPP), Santa Barbara, CA, July 19-21, 1995. (22 papers accepted)

188. "Practical Parallel Algorithms for Dynamic Data Redistribution, Median Finding, and Selection," D.A. Bader and J. JáJá. *International Parallel Processing Symposium* (IPPS), Honolulu, HI, pp 292-301, April 1996. (126 papers accepted out of 353 papers submitted: 35.7% acceptance rate)

189. "Parallel Algorithms for Image Enhancement and Segmentation by Region Growing with an Experimental Study," D.A. Bader, J. JáJá, D. Harwood, and L.S. Davis. *International Parallel Processing Symposium* (IPPS), Honolulu, HI, pp. 414-423, April 1996. (126 papers accepted out of 353 papers submitted: 35.7% acceptance rate)

190. "Parallel Algorithms for Personalized Communication and Sorting with an Experimental Study," D.R. Helman, D.A. Bader, and J. JáJá. *Eighth Annual ACM Symposium on Parallel Algorithms and Architectures* (SPAA), Padua, Italy, pp. 211-220, June 1996. (39 papers accepted out of 106 papers submitted: 36.8% acceptance rate)

191. "A Hierarchical Data Archiving and Processing System to Generate Custom Tailored Products from AVHRR Data," S.N.V. Kalluri, Z. Zhang, J. JáJá, D.A. Bader, H. Song, N. El Saleous, E. Vermote, and J.R.G. Townshend. *IEEE 1999 International Geoscience and Remote Sensing Symposium* (IGARSS), Hamburg, Germany, pp. 2374-2376, Vol. 5, June/July 1999.

192. "Design and Analysis of the Alliance / University of New Mexico Roadrunner Linux SMP SuperCluster," D.A. Bader, A.B. Maccabe, J.R. Mastaler, J.K. McIver III, and P.A. Kovatch. *First IEEE Computer Society International Workshop on Cluster Computing* (IWCC), Melbourne, Australia, December 1999. (37 papers accepted)

193. "High-Performance Algorithms and Applications for SMP Clusters," D.A. Bader. *NASA High Performance Computing and Communications Computational Aerosciences Workshop* (CAS 2000), NASA Ames Research Center, February 15-17, 2000.

194. "An Improved Randomized Selection Algorithm With an Experimental Study," D.A. Bader, *Second Workshop on Algorithm Engineering and Experiments* (ALENEX00), (sponsored by DIMACS, ACM SIGACT, and SIAM), San Francisco, CA, January 7-8, 2000. (15 papers accepted out of 35 papers submitted: 42.8% acceptance rate)

195. "A New Implementation and Detailed Study of Breakpoint Analysis," B.M.E. Moret, S. Wyman, D.A. Bader, T. Warnow, M. Yan. *Sixth Pacific Symposium on Biocomputing 2001* (PSB2001), pp. 583-594, Big Island, Hawaii, January 3-7, 2001.

196. "High-Performance Algorithm Engineering for Gene-Order Phylogenies," D.A. Bader, B. M.E. Moret, T. Warnow, S.K. Wyman, and M. Yan. *DIMACS Workshop on Whole Genome Comparison*, DIMACS Center, Rutgers University, Piscataway, NJ, March 1, 2001.

197. "Variation in vegetation growth rates: Implications for the evolution of semi-arid landscapes," C. Restrepo, B.T. Milne, D. Bader, W. Pockman, and A. Kerkhoff. *16th Annual Symposium of the US-International Association of Landscape Ecology*, Arizona State University, Tempe, April 25-29, 2001.

198. "High-Performance Algorithm Engineering for Computational Phylogeny," B. M.E. Moret, D.A. Bader, and T. Warnow. *2001 International Conference on Computational Science* (ICCS 2001), V. Alexandrov and J. Dongarra and C.J.K. Tan (eds.), Springer-Verlag LNCS 2074, 1012-1021, San Francisco, CA, May 29, 2001. (230 accepted and invited papers)

199. "A Linear-Time Algorithm for Computing Inversion Distance Between Two Signed Permutations with an Experimental Study," D.A. Bader, B. M.E. Moret, and M. Yan. *Seventh International Workshop on Algorithms and Data Structures* (WADS 2001), F. Dehne, J.-R. Sack, and R. Tamassia (eds.), Springer-Verlag LNCS 2125, 365-376, Brown University, Providence, RI, August 8-10, 2001. (40 papers accepted out of 89 papers submitted: 44.9% acceptance rate)

200. "Industrial Applications of High-Performance Computing for Phylogeny Reconstruction," D.A. Bader, B. M.E. Moret, and L. Vawter, *SPIE ITCom: Commercial Applications for High-Performance Computing* (SPIE ITCom2001), Denver, CO, SPIE Vol. 4528, pp. 159-168, August 21-22, 2001. (21 papers accepted)

201. "Using PRAM Algorithms on a Uniform-Memory-Access Shared-Memory Architecture," D.A. Bader, A. Illendula, B. M.E. Moret, and N.R. Weisse-Bernstein. *Fifth Workshop on Algorithm Engineering* (WAE 2001), G.S. Brodal, D. Frigioni, and A. Marchetti-Spaccamela, (eds.), Springer-Verlag LNCS 2141, 129-144, University of Aarhus, Denmark, August 28-31, 2001. (15 papers accepted out of 25 papers submitted: 60% acceptance rate)

202. "Broadcast on Clusters of SMPs with Optimal Concurrency," Y. Sun, D.A. Bader, X. Lin, and Y. Ling, *The 2002 International Conference on Parallel and Distributed Processing Techniques and Applications* (PDPTA), Las Vegas, NV, June 2002.

203. "Evaluating Arithmetic Expressions using Tree Contraction: A Fast and Scalable Parallel Implementation for Symmetric Multiprocessors (SMPs)," D.A. Bader, S. Sreshta, and N.R. Weisse-Bernstein. *9th International Conference on High Performance Computing* (HiPC 2002), Bangalore, India, *Lecture Notes in Computer Science*, 2552:63-75, December 2002. (57 papers accepted out of 145 papers submitted: 39.3% acceptance rate)

204. "A Fast, Parallel Spanning Tree Algorithm for Symmetric Multiprocessors (SMPs)," D.A. Bader and G. Cong, *18th IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Santa Fe, NM, April 26-30, 2004. (142 papers accepted out of 447 papers submitted: 31.8% acceptance rate)

205. "Fast Shared-Memory Algorithms for Computing the Minimum Spanning Forest of Sparse Graphs," D.A. Bader and G. Cong, *18th IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Santa Fe, NM, April 26-30, 2004. (142 papers accepted out of 447 papers submitted: 31.8% acceptance rate)

206. "The Euler Tour Technique and Parallel Rooted Spanning Tree," G. Cong and D.A. Bader, *33rd International Conference on Parallel Processing* (ICPP), Montreal, Canada, pages 448-457, August 15-18, 2004. (65 papers accepted out of 190 papers submitted: 34.2% acceptance rate)

207. "A Novel FDTD Application Featuring OpenMP-MPI Hybrid Parallelization," M. F. Su, I. El-Kady, D. A. Bader, and S.-Y. Lin, *33rd International Conference on Parallel Processing* (ICPP), Montreal, Canada, pages 373-379, August 15-18, 2004. (65 papers accepted out of 190 papers submitted: 34.2% acceptance rate)

208. "A Parallel State Assignment Algorithm for Finite State Machines," D.A. Bader and K. Madduri, *The 11th IEEE International Conference on High Performance Computing* (HiPC 2004), L. Bougé and V.K. Prasanna, (eds.), Springer-Verlag LNCS 3296, 297-308, Bangalore, India, December 2004. (48 papers accepted out of 214 papers submitted: 22.4% acceptance rate)

209. "Lock-free Parallel Algorithms: An Experimental Study," G. Cong and D.A. Bader, *The 11th IEEE International Conference on High Performance Computing* (HiPC 2004), L. Bougé and V.K. Prasanna, (eds.), Springer-Verlag LNCS 3296, 516-527, Bangalore, India, December 2004. (48 papers accepted out of 214 papers submitted: 22.4% acceptance rate)

210. "An Experimental Study of Parallel Biconnected Components Algorithms on Symmetric Multiprocessors (SMPs)," G. Cong and D.A. Bader, *19th IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Denver, CO, April 4-8, 2005. (115 papers accepted out of 343 papers submitted: 33.5% acceptance rate)

211. "On the Architectural Requirements for Efficient Execution of Graph Algorithms," D.A. Bader, G. Cong, and J. Feo, *34th International Conference on Parallel Processing* (ICPP), pp. 547-556, Georg Sverdrups House, University of Oslo, Norway, June 14-17, 2005. (69 papers accepted out of 241 papers submitted: 28.6% acceptance rate)

212. "BioSPLASH: A sample workload from bioinformatics and computational biology for optimizing next-generation high-performance computer systems," Poster Session, D.A. Bader, V. Sachdeva, A. Trehan, V. Agarwal, G. Gupta, and A.N. Singh, *13th Annual International Conference on Intelligent Systems for Molecular Biology* (ISMB 2005), Detroit, MI, June 25-29, 2005.

213. "BioSPLASH: Incorporating life sciences applications in the architectural optimizations of next-generation petaflop-system," Poster Session, D.A. Bader, V. Sachdeva, *The 4th IEEE Computational Systems Bioinformatics Conference* (CSB 2005), Stanford University, CA, August 8-11, 2005.

214. "A Cache-Aware Parallel Implementation of the Push-Relabel Network Flow Algorithm and Experimental Evaluation of the Gap Relabeling Heuristic," D.A. Bader, V. Sachdeva, *The 18th ISCA International Conference on Parallel and Distributed Computing Systems* (PDCS 2005), Las Vegas, NV, September 12-14, 2005.

215. "An Empirical Analysis of Parallel Random Permutation Algorithms on SMPs," G. Cong, D.A. Bader, *The 18th ISCA International Conference on Parallel and Distributed Computing Systems* (PDCS 2005), Las Vegas, NV, September 12-14, 2005.

216. "BioPerf: A Benchmark Suite to Evaluate High-Performance Computer Architecture on Bioinformatics Applications," D.A. Bader, Y. Li, T. Li, V. Sachdeva, *The IEEE International Symposium on Workload Characterization* (IISWC 2005), Austin, TX, October 6-8, 2005. (17 papers accepted out of 52 papers submitted: 32.6% acceptance rate)

217. "Design and Implementation of the HPCS Graph Analysis Benchmark on Symmetric Multiprocessors," D.A. Bader and K. Madduri, *The 12th IEEE International Conference on High Performance Computing* (HiPC 2005), D.A. Bader *et al.*, (eds.), Springer-Verlag LNCS 3769, 465-476, Goa, India, December 2005. (50 papers accepted out of 362 papers submitted: 13.8% acceptance rate). **HiPC Most Impactful Papers Award, at HiPC 25th Silver Jubilee**.

218. "Performance analysis of parallel programs via message-passing graph traversal," M. Sottile, V. Chandu, and D.A. Bader, *20th IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Rhodes Island, Greece, April 25-29, 2006. (125 papers accepted out of 531 papers submitted: 23.5% acceptance rate)

219. "ExactMP: An Efficient Parallel Exact Solver for Phylogenetic Tree Reconstruction Using Maximum Parsimony," D.A. Bader, V. Chandu, and M. Yan, *35th International Conference on Parallel Processing* (ICPP), Columbus, OH, August 14-18, 2006. (64 papers accepted out of 200 papers submitted: 32.0% acceptance rate)

220. "Designing Multithreaded Algorithms for Breadth-First Search and st-connectivity on the Cray MTA-2," D.A. Bader and K. Madduri, *35th International Conference on Parallel Processing* (ICPP), Columbus, OH, August 14-18, 2006. (64 papers accepted out of 200 papers submitted: 32.0% acceptance rate)

221. "Parallel Algorithms for Evaluating Centrality Indices in Real-world Networks," D.A. Bader and K. Madduri, *35th International Conference on Parallel Processing* (ICPP), Columbus, OH, August 14-18, 2006. (64 papers accepted out of 200 papers submitted: 32.0% acceptance rate)

222. "Parallel Shortest Path Algorithms for Solving Large-Scale Instances," K. Madduri, D.A. Bader, J.W. Berry, and J.R. Crobak, *9th DIMACS Implementation Challenge – The Shortest Path Problem*, DIMACS Center, Rutgers University, Piscataway, NJ, November 13-14, 2006.

223. "Efficient Implementation of Irregular Algorithms on Cell Multi-core Architecture," Poster Session, D.A. Bader, V. Agarwal, and K. Madduri, *Supercomputing '06 Workshop: General-Purpose GPU Computing: Practice And Experience*, Tampa, FL, November 13, 2006.

224. "An Experimental Study of A Parallel Shortest Path Algorithm for Solving Large-Scale Graph Instances," K. Madduri, D.A. Bader, J.W. Berry, and J.R. Crobak, *Workshop on Algorithm Engineering and Experiments* (ALENEX), New Orleans, LA, January 6, 2007. (15 papers accepted out of 60 papers submitted: 25.0% acceptance rate)

225. "On the Design and Analysis of Irregular Algorithms on the Cell Processor: A case study on list ranking," D.A. Bader, V. Agarwal, and K. Madduri, *21st IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Long Beach, CA, March 26-30, 2007. (109 papers accepted out of 419 papers submitted: 26.0% acceptance rate)

226. "A Graph-Theoretic Analysis of the Human Protein-Interaction Network Using Multi-core Parallel Algorithms," D.A. Bader and K. Madduri, *Sixth IEEE International Workshop on High Performance Computational Biology* (HiCOMB), Long Beach, CA, March 26, 2007.

227. "SWARM: A Parallel Programming Framework for Multi-Core Processors," D.A. Bader, V.N. Kanade, and K. Madduri, *First Workshop on Multithreaded Architectures and Applications* (MTAAP), Long Beach, CA, March 30, 2007.

228. "Advanced Shortest Path Algorithms on a Massively-Multithreaded Architecture," J.R. Crobak, J.W. Berry, K. Madduri, and D.A. Bader, *First Workshop on Multithreaded Architectures and Applications* (MTAAP), Long Beach, CA, March 30, 2007.

229. "Techniques for Designing Efficient Parallel Graph Algorithms for SMPs and Multicore Processors," G. Cong, D.A. Bader, *The 5th International Symposium on Parallel and Distributed Processing and Applications* (ISPA 2007), Niagara Falls, Ontario, Canada, August 29-31, 2007.

230. "High-Performance Combinatorial Techniques for Analyzing Massive Dynamic Interaction Networks," D.A. Bader and K. Madduri, *DIMACS Workshop on Computational Methods for Dynamic Interaction Networks*, DIMACS Center, Rutgers University, Piscataway, NJ, September 24-25, 2007.

231. "Approximating Betweenness Centrality," D.A. Bader, S. Kintali, K. Madduri, and M. Mihail, *5th Workshop on Algorithms and Models for the Web-Graph* (WAW2007), San Diego, CA, December 11-12, 2007.

232. "FFTC: Fastest Fourier Transform for the IBM Cell Broadband Engine," D.A. Bader, V. Agarwal, *The 14th Annual IEEE International Conference on High Performance Computing* (HiPC 2007), S. Aluru *et al.*, (eds.), Springer-Verlag LNCS 4873, 172-184, Goa, India, December 18-21, 2007. (52 papers accepted out of 253 papers submitted: 20.5% acceptance rate)

233. "SNAP, Small-world Network Analysis and Partitioning: an open-source parallel graph framework for the exploration of large-scale networks," D.A. Bader and K. Madduri, *22nd IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Miami, FL, April 14-18, 2008. (105 papers accepted out of 410 papers submitted: 25.6% acceptance rate)

234. "High Performance MPEG-2 Software Decoder on the Cell Broadband Engine," D.A. Bader and S. Patel, *22nd IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Miami, FL, April 14-18, 2008. (105 papers accepted out of 410 papers submitted: 25.6% acceptance rate)

235. "Financial Modeling on the Cell Broadband Engine," V. Agarwal, L.-K. Liu, and D.A. Bader, *22nd IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Miami, FL, April 14-18, 2008. (105 papers accepted out of 410 papers submitted: 25.6% acceptance rate)

236. "Optimizing JPEG2000 Still Image Encoding on the Cell Broadband Engine," S. Kang and D.A. Bader, *37th International Conference on Parallel Processing* (ICPP), Portland, OR, September 8-12, 2008. (81 papers accepted out of 263 papers submitted: 30.8% acceptance rate)

237. "On the Design of Fast Pseudo-Random Number Generators for the Cell Broadband Engine and an Application to Risk Analysis," D.A. Bader, A. Chandramowlishwaran, and V. Agarwal, *37th International Conference on Parallel Processing* (ICPP), Portland, OR, September 8-12, 2008. (81 papers accepted out of 263 papers submitted: 30.8% acceptance rate)

238. "A Prediction Based CMP Cache Migration Policy," S. Hao, Z. Du, D.A. Bader, and M. Wang, *10th IEEE International Conference on High Performance Computing and Communications* (HPCC), Dalian, China, September 25-27, 2008. (90 papers accepted out of 455 papers submitted: 19.7% acceptance rate)

239. "An Efficient Transactional Memory Algorithm for Computing Minimum Spanning Forest of Sparse Graphs," S. Kang and D.A. Bader, *14th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* (PPoPP), Raleigh, NC, February 14-18, 2009. (26 papers accepted out of 109 papers submitted: 23.9% acceptance rate)

240. "GTfold: A Scalable Multicore Code for RNA Secondary Structure Prediction," A. Mathuriya, D.A. Bader, C.E. Heitsch, and S.C. Harvey, *24th Annual ACM Symposium on Applied Computing* (SAC), Computational Sciences Track, Honolulu, HI, March 8-12, 2009. (30% acceptance rate)

241. "Compact Graph Representations and Parallel Connectivity Algorithms for Massive Dynamic Network Analysis," K. Madduri and D.A. Bader, *23rd IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Rome, Italy, May 25-29, 2009. (100 papers accepted out of 440 papers submitted: 22.7% acceptance rate)

242. "Understanding the Design Trade-offs among Current Multicore Systems for Numerical Computations," S. Kang, D.A. Bader, and R. Vuduc, *23rd IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Rome, Italy, May 25-29, 2009. (100 papers accepted out of 440 papers submitted: 22.7% acceptance rate)

243. "A Faster Parallel Algorithm and Efficient Multithreaded Implementations for Evaluating Betweenness Centrality on Massive Datasets," K. Madduri, D. Ediger, K. Jiang, D.A. Bader, and D.G. Chavarría-Miranda, *Third Workshop on Multithreaded Architectures and Applications* (MTAAP), Rome, Italy, May 29, 2009. (12 papers accepted out of 22 papers submitted.)

244. "Simulating Individual-Based Models of Epidemics in Hierarchical Networks," R. Quax, D.A. Bader, and P.M.A. Sloot, *International Conference on Computational Science* (ICCS), G. Allen, J. Nabrzyski, E. Seidel G.D. van Albada, J. Dongarra, P.M.A. Sloot, (eds.), Springer-Verlag LNCS 5544, 726-734, Baton Rouge, LA, May 25-27 2009. (57 papers accepted out of 165 papers submitted: 34.5% acceptance rate)

245. "Faster FAST : Multicore Acceleration of Streaming Financial Data," V. Agarwal, D.A. Bader, L. Dan, L.-K. Liu, D. Pasetto, M. Perrone, and F. Petrini, *24th International Supercomputing Conference* (ISC), Hamburg, Germany, June 23-26, 2009. **Best Paper Award**. (24 papers accepted out of 54 papers submitted: 44.4% acceptance rate)

246. "A Partition-Merge based Cache-Conscious Parallel Sorting Algorithm for CMP with Shared Cache," S. Hao, Z. Du, D.A. Bader, and Y. Ye, *The 38th International Conference on Parallel Processing* (ICPP 2009), Vienna, Austria, September 22-25, 2009. (71 papers accepted out of 220 papers submitted: 32.2% acceptance rate)

247. "Generalizing k-Betweenness Centrality Using Short Paths and a Parallel Multithreaded Implementation," K. Jiang, D. Ediger and D.A. Bader, *The 38th International Conference on Parallel Processing* (ICPP 2009), Vienna, Austria, pages 542-549, September 22-25, 2009. (71 papers accepted out of 220 papers submitted: 32.2% acceptance rate)

248. "A Tile-based Parallel Viterbi Algorithm for Biological Sequence Alignment on GPU with CUDA," Z. Du, Z. Yin, and D.A. Bader, *9th IEEE International Workshop on High Performance Computational Biology* (HiCOMB), Atlanta, GA, April 19, 2010. (10 papers accepted out of 17 papers submitted.)

249. "Large Scale Complex Network Analysis using the Hybrid Combination of a MapReduce cluster and a Highly Multithreaded System," S. Kang and D.A. Bader, *4th Workshop on Multithreaded Architectures and Applications* (MTAAP), Atlanta, GA, April 23, 2010. (11 papers accepted out of 22 papers submitted.)

250. "Massive Streaming Data Analytics: A Case Study with Clustering Coefficients," D. Ediger, K. Jiang, J. Riedy, and D.A. Bader, *4th Workshop on Multithreaded Architectures and Applications* (MTAAP), Atlanta, GA, April 23, 2010. (11 papers accepted out of 22 papers submitted.)

251. "Evaluating Cell/B.E. Software Cache for ClustalW," V. Sachdeva, M. Kistler, and D.A. Bader *The IEEE International Symposium on Circuits and Systems*, (ISCAS 2010), Paris, France, May 31 - June 2, 2010.

252. "Massive Social Network Analysis: Mining Twitter for Social Good," D. Ediger, K. Jiang, J. Riedy, D.A. Bader, C. Corley, R. Farber and W.N. Reynolds, *The 39th International Conference on Parallel Processing* (ICPP 2010), San Diego, CA, September 13-16, 2010. (70 papers accepted out of 225 papers submitted: 31.1% acceptance rate)

253. "GPUMemSort: A High Performance Graphic Co-processors Sorting Algorithm for Large Scale In-Memory Data," Y. Ye, Z. Du, and D.A. Bader, *Annual International Conference on Advances in Distributed and Parallel Computing* (ADPC 2010), Singapore, November 1-2, 2010.

254. "Scalable Graph Exploration on Multicore Processors," V. Agarwal, F. Petrini, D. Pasetto and D.A. Bader. *The 22nd IEEE and ACM Supercomputing Conference* (SC10), New Orleans, LA, November 13-19, 2010. (51 papers accepted out of 253 papers submitted: 20.2% acceptance rate)

255. "On Accelerating Iterative Algorithms with CUDA: A Case Study on Conditional Random Fields Training Algorithm for Biological Sequence Alignment," Z. Du, Z. Yin, W. Liu, and D.A. Bader, *IEEE International Conference on Bioinformatics & Biomedicine, Workshop on Data-Mining of Next Generation Sequencing Data* (NGS2010), Hong Kong, December 20, 2010.

256. "A Waterfall Model to Achieve Energy Efficient Task Mapping for Large Scale GPU Cluster," Z. Du, W. Liu, X. Yu, D.A. Bader, and C. Xu, *20th International Heterogeneity in Computing Workshop* (HCW), Anchorage, AK, May 16, 2011. (10 papers accepted out of 16 papers submitted.)

257. "Tracking Structure of Streaming Social Networks," D. Ediger, J. Riedy, H. Meyerhenke, and D.A. Bader, *5th Workshop on Multithreaded Architectures and Applications* (MTAAP), Anchorage, AK, May 20, 2011. (10 papers accepted out of 17 papers submitted.)

258. "Semantic Databases and Supercomputers," D. Mizell, D.A. Bader, E.L. Goodman, and D.J. Haglin, *2011 Semantic Technology Conference* (SemTech), San Francisco, CA, June 5-9, 2011.

259. "Parallel Community Detection for Massive Graphs," E.J. Riedy, H. Meyerhenke, D. Ediger, and D.A. Bader, *The 9th International Conference on Parallel Processing and Applied Mathematics* (PPAM), Torun, Poland, September 11-14, 2011. *Lecture Notes in Computer Science*, 7203:286-296, 2012. (134 papers accepted out of 243 papers submitted: 55% acceptance rate)

260. "Parallel Community Detection for Massive Graphs," E.J. Riedy, D. Ediger, D.A. Bader, and H. Meyerhenke, *10th DIMACS Implementation Challenge – Graph Partitioning and Graph Clustering*, Atlanta, GA, February 13-14, 2012.

261. "Analysis of Streaming Social Networks and Graphs on Multicore Architectures," E.J. Riedy, H. Meyerhenke, D.A. Bader, D. Ediger, and T. Mattson, *The 37th IEEE International Conference on Acoustics, Speech, and Signal Processing* (ICASSP), Kyoto, Japan, March 25-30, 2012.

262. "Scalable Multi-threaded Community Detection in Social Networks," J. Riedy, H. Meyerhenke, and D.A. Bader, *6th Workshop on Multithreaded Architectures and Applications* (MTAAP), Shanghai, China, May 25, 2012. (9 papers accepted out of 15 papers submitted.)

263. "GPU Merge Path – A GPU Merging Algorithm," O. Green, R. McColl, and D.A. Bader, *26th ACM International Conference on Supercomputing* (ICS), San Servolo Island, Venice, Italy, June 25-29, 2012. (36 papers accepted out of 161 papers submitted: 22.4% acceptance rate)

264. "A Fast Algorithm for Streaming Betweenness Centrality," O. Green, R. McColl, and D.A. Bader, *4th ASE/IEEE International Conference on Social Computing* (SocialCom), Amsterdam, The Netherlands, September 3-5, 2012. (44 papers accepted out of 191 papers submitted: 23.0% acceptance rate)

265. "STINGER: High Performance Data Structure for Streaming Graphs," D. Ediger, R. McColl, J. Riedy, and D.A. Bader, *The IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 20-22, 2012. **Best Paper Award**.

266. "Enhancing Cache Coherent Architecture with Access Patterns for Embedded Manycore Systems," J. Marandola, S. Louise, L. Cudennec, J.-T. Acquaviva and D.A. Bader, *14th IEEE International Symposium on System-on-Chip* (SoC), Tampere, Finland, October 11-12, 2012. (15 papers accepted out of 39 papers submitted: 38.5% acceptance rate)

267. "Task-based Parallel Breadth-First Search in Heterogeneous Environments," L.M. Munguía, E. Ayguade, and D.A. Bader, *The 19th Annual IEEE International Conference on High Performance Computing* (HiPC 2012), Pune, India, December 18-21, 2012. (41 papers accepted out of 163 papers submitted: 25.1% acceptance rate)

268. "Energy-Efficient Scheduling for Best-Effort Interactive Services to Achieve High Response Quality," Z. Du, H. Sun, Y. He, Y. He, D.A. Bader, and H. Zhang, *27th IEEE International Parallel and Distributed Processing Symposium* (IPDPS), Boston, MA, May 20-24, 2013. (108 papers accepted out of 490 papers submitted: 22.0% acceptance rate)

269. "Multithreaded Community Monitoring for Massive Streaming Graph Data," J. Riedy and D.A. Bader, *7th Workshop on Multithreaded Architectures and Applications* (MTAAP), Boston, MA, May 24, 2013. (11 papers accepted out of 16 papers submitted.)

270. "Investigating Graph Algorithms in the BSP Model on the Cray XMT," D. Ediger and D.A. Bader, *7th Workshop on Multithreaded Architectures and Applications* (MTAAP), Boston, MA, May 24, 2013. (11 papers accepted out of 16 papers submitted.)

271. "Faster Betweenness Centrality Based on Data Structure Experimentation," O. Green and D.A. Bader, *International Conference on Computational Science* (ICCS), Barcelona, Spain, June 5-7, 2013. *Procedia Computer Science*, 18:399-408, 2013. (185 papers accepted out of 612 papers submitted: 30.0% acceptance rate)

272. "Streaming Breakpoint Graph Analytics for Accelerating and Parallelizing the Computation of DCJ Median of Three Genomes," Z. Yin, J. Tang, S. Schaeffer, and D.A. Bader, *International Conference on Computational Science* (ICCS), Barcelona, Spain, June 5-7, 2013. *Procedia Computer Science*, 18:561-570, 2013. (185 papers accepted out of 612 papers submitted: 30.0% acceptance rate)

273. "Detecting Insider Threats in a Real Corporate Database of Computer Usage Activities," T. Senator, D.A. Bader, et al., *19th ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD), Chicago, IL, August 11-14, 2013. (126 papers accepted out of 726 papers submitted: 17.4% acceptance rate)

274. "A Statistical Framework for Streaming Graph Analysis," J. Fairbanks, D. Ediger, R. McColl, D.A. Bader and E. Gilbert, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), Niagara Falls, Canada, August 25-28, 2013.

275. "Measuring the Sensitivity of Graph Metrics to Missing Data," A. Zakrzewska and D.A. Bader, *10th International Conference on Parallel Processing and Applied Mathematics* (PPAM), Warsaw, Poland, September 8-11, 2013.

276. "Faster Clustering Coefficient Using Vertex Covers," O. Green and D.A. Bader, *5th ASE/IEEE International Conference on Social Computing* (SocialCom), Washington, DC, September 8-14, 2013. (XX papers accepted out of YYY papers submitted: 9.9% acceptance rate)

277. "Standards for Graph Algorithm Primitives," T. Mattson, D.A. Bader, J. Berry, A. Buluc, J. Dongarra, C. Faloutsos, J. Feo, J. Gilbert, J. Gonzalez, B. Hendrickson, J. Kepner, C. Leiserson, A. Lumsdaine, D. Padua, S. Poole, S. Reinhardt, M. Stonebraker, S. Wallach, A. Yoo, *The 17th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 10-12, 2013.

278. "A New Parallel Algorithm for Connected Components in Dynamic Graphs," R. McColl, O. Green, and D.A. Bader, *The 20th Annual IEEE International Conference on High Performance Computing* (HiPC 2013), Bangalore, India, December 18-21, 2013. (49 papers accepted out of 196 papers submitted: 25.0% acceptance rate)

279. "A Performance Evaluation of Open Source Graph Databases," R. McColl, D. Ediger, J. Poovey, D. Campbell, and D.A. Bader, *The 1st Workshop on Parallel Programming for Analytics Applications* (PPAA 2014) held in conjunction with the *19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* (PPoPP 2014), Orlando, Florida, February 16, 2014.

280. "Load Balanced Clustering Coefficients," O. Green, L.M. Munguía, and D.A. Bader, *The 1st Workshop on Parallel Programming for Analytics Applications* (PPAA 2014) held in conjunction with the *19th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* (PPoPP 2014), Orlando, Florida, February 16, 2014.

281. "Revisiting Edge and Node Parallelism for Dynamic GPU Graph Analytics," A. McLaughlin and D.A. Bader, *8th Workshop on Multithreaded Architectures and Applications* (MTAAP), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2014), Phoenix, AZ, May 23, 2014.

282. "A Lin-Kernighan Heuristic for the DCJ Median Problem of Genomes with Unequal Contents," Z. Yin, J. Tang, S. Schaeffer, D.A. Bader, *20th International Computing and Combinatorics Conference* (COCOON), Atlanta, GA, August 4-6, 2014. *Lecture Notes in Computer Science*, 8591:227-238, 2014.

283. "Designing an Adaptive Cross-Architecture Combination for Graph Traversal," Y. You, D.A. Bader and M.M. Dehnavi, *The 43rd International Conference on Parallel Processing* (ICPP 2014), Minneapolis, MN, September 9-12, 2014. (54 papers accepted out of 150 papers submitted: 36.0% acceptance rate)

284. "Optimizing Energy Consumption and Parallel Performance for Betweenness Centrality using GPUs," A. McLaughlin, J. Riedy, and D.A. Bader, *The 18th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 9-11, 2014.

285. "Scalable and High Performance Betweenness Centrality on the GPU," A. McLaughlin and D.A. Bader, *The 26th IEEE and ACM Supercomputing Conference* (SC14), New Orleans, LA, November 16-21, 2014. **Best Student Paper Finalist.** (82 papers accepted out of 394 papers submitted: 20.8% acceptance rate)

286. "Graph analysis trends and opportunities," J. Riedy and D.A. Bader, *The 40th International Conference on Performance and Capacity*, Computer Measurement Group (CMG), Atlanta, GA, November 4, 2014.

287. "A Methodology for Co-Location Aware Application Performance Modeling in Multicore Computing," D. Dauwe, E. Jonardi, R. Friese, S. Pasricha, A.A. Maciejewski, D.A. Bader, and H.J. Siegel, *17th Workshop on Advances on Parallel and Distributed Processing Symposium* (APDCM), Hyderabad, India, May 25, 2015.

288. "Graphs, Matrices, and the GraphBLAS: Seven Good Reasons," J. Kepner, D. Bader, A. Buluç, J. Gilbert, T. Mattson, and H. Meyerhenke, *International Conference on Computational Science* (ICCS), Reykjavík, Iceland, June 1-3, 2015. *Procedia Computer Science*, 51:2453-2462, 2015.

289. "Fast Incremental Community Detection on Dynamic Graphs," A. Zakrzewska and D.A. Bader, *11th International Conference on Parallel Processing and Applied Mathematics* (PPAM), Krakow, Poland, September 6-9, 2015.

290. "An Energy-Efficient Abstraction for Simultaneous Breadth-First Searches," A. McLaughlin, J. Riedy, and D.A. Bader, *The 19th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 15-17, 2015.

291. "Parallel Methods for Verifying the Consistency of Weakly-Ordered Architectures," A. McLaughlin, D. Merrill, M. Garland and D.A. Bader, *The 24th International Conference on Parallel Architectures and Compilation Techniques* (PACT), San Francisco, CA, October 18-21, 2015. (38 papers accepted out of 179 papers submitted: 21.2% acceptance rate)

292. "Fast Execution of Simultaneous Breadth-First Searches on Sparse Graphs," A. McLaughlin and D.A. Bader, *The 21st IEEE International Conference on Parallel and Distributed Systems* (ICPADS), Melbourne, Australia, December 14-17, 2015.

293. "Semantic database applications at the Samtavro Cemetery, Georgia," David Bader, Aleksandra Michalewicz, Oded Green, Jessie Birkett-Rees, Jason Riedy, James Fairbanks, and Anita Zakrzewska, *The 44th Computer Applications and Quantitative Methods in Archaeology Conference* (CAA), Oslo, Norway, March 29 – April 2, 2016.

294. "A Memory and Time Scalable Parallelization of the Reptile Error-Correction Code," Vipin Sachdeva, Srinivas Aluru, David A. Bader, *15th IEEE International Workshop on High Performance Computational Biology* (HiCOMB), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2016), Chicago, IL, May 23, 2016.

295. "New Stopping Criteria For Spectral Partitioning," James Fairbanks, Anita Zakrzewska, and David A. Bader, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), San Francisco, CA, August 18-21, 2016.

296. "A Local Measure of Community Change in Dynamic Graphs," Anita Zakrzewska, Eisha Nathan, James Fairbanks, and David A. Bader, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), San Francisco, CA, August 18-21, 2016.

297. "Aging Data in Dynamic Graphs: A Comparative Study," Anita Zakrzewska and David A. Bader, *2nd International Workshop on Dynamics in Networks* (DyNo), held in conjunction with *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), San Francisco, CA, August 18, 2016.

298. "cuSTINGER: Supporting Dynamic Graph Algorithms for GPUs," O. Green and D.A. Bader, *The 20th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 13-15, 2016.

299. "Mathematical Foundations of the GraphBLAS," Jeremy Kepner, Peter Aaltonen, David A. Bader, Aydin Buluc, Franz Franchetti, John Gilbert, Dylan Hutchison, Manoj Kumar, Andrew Lumsdaine, Henning Meyerhenke, Scott McMillan, Jose Moreira, John D. Owens, Carl Yang, Marcin Zalewski, and Timothy Mattson, *The 20th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 13-15, 2016.

300. "When Good Enough Is Better: Energy-Aware Scheduling for Multicore Servers," X. Hui, Z. Du, J. Liu, H. Sun, Y. He and D.A. Bader, *13th Workshop on High-Performance, Power-Aware Computing* (HPPAC), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2017), Orlando, FL, May 29, 2017.

301. "Graph Ranking Guarantees for Numerical Approximations to Katz Centrality," E. Nathan, G. Sanders, J. Fairbanks, V. Henson and D.A. Bader, *International Conference on Computational Science* (ICCS), Zürich, Switzerland, June 12-14, 2017.

302. "Streaming Graph Sampling with Size Restrictions," Anita Zakrzewska and David A. Bader, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), Sydney, Australia, July 31 - August 3, 2017.

303. "A Dynamic Algorithm for Updating Katz Centrality in Graphs," Eisha Nathan and David A. Bader, *IEEE/ACM International Conference on Advances in Social Networks Analysis and Modeling* (ASONAM), Sydney, Australia, July 31 - August 3, 2017.

304. "Approximating Personalized Katz Centrality in Dynamic Graphs," E. Nathan and D.A. Bader, *12th International Conference on Parallel Processing and Applied Mathematics* (PPAM), Lublin, Poland, September 10-13, 2017.

305. "Design and Implementation of Parallel PageRank on Multicore Platforms," Shijie Zhou, Shreyas G. Singapura, Kartik Lakhotia, Hanqing Zeng, Rajgopal Kannan, Viktor K. Prasanna, James Fox, Euna Kim, Oded Green and David A. Bader, *The 21st Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 12-14, 2017. **Graph Challenge Student Innovation Award**.

306. "Quickly Finding a Truss in a Haystack," Oded Green, James Fox, Euna Kim, Federico Busato, Nicola Bombieri, Kartik Lakhotia, Shijie Zhou, Shreyas Singapura, Hanqing Zeng, Rajgopal Kannan, Viktor Prasanna, and David A. Bader, *The 21st Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 12-14, 2017. **Graph Challenge Innovation Award**.

307. "Ranking in Dynamic Graphs using Exponential Centrality," Eisha Nathan, James Fairbanks, and David A. Bader, *6th International Conference on Complex Networks and Their Applications*, Lyon, France, November 29 - December 1, 2017. In: Cherifi C., Cherifi H., Karsai M., Musolesi M. (eds), *Complex Networks & Their Applications VI*, Complex Networks 2016 2017. Springer Studies in Computational Intelligence, 689:378-389, 2018.

308. "Exact and Parallel Triangle Counting in Dynamic Graphs," Devavret Makkar, David A. Bader, and Oded Green, *The 24th IEEE International Conference on High Performance Computing* (HiPC), Jaipur, India, December 18-21, 2017.

309. "A New Algorithm Model for Graph Analysis of Streaming Data," C. Yin, J. Riedy, and D.A. Bader, *14th International Workshop on Mining and Learning with Graphs* (MLG), held in conjunction with *24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining* (KDD), London, England, August 20, 2018.

310. "Massive-Scale Streaming Analytics: Models, Parallelsim, and Real-World Applications," D.A. Bader, *The 30th ACM Symposium on Parallelism in Algorithms and Architectures* (SPAA), Vienna, Austria, p. 193, July 16-18, 2018.

311. "Scalable Katz Ranking Computation in Large Dynamic Graphs," Alexander van der Grinten, Elisabetta Bergamini, Oded Green, David A. Bader, and Henning Meyerhenke, *The 26th Annual European Symposium on Algorithms* (ESA), Helsinki, Finland, August 20-22, 2018.

312. "Hornet: An Efficient Data Structure for Dynamic Sparse Graphs and Matrices on GPUs," Federico Busato, Oded Green, Nicola Bombieri, and David A. Bader, *The 22nd Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 25-27, 2018.

313. "Fast and Adaptive List Intersections on the GPU," James Fox, Oded Green, Kasimir Gabert, Xiaojing An, and David A. Bader, *The 22nd Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 25-27, 2018. **Graph Challenge Finalist**.

314. "Logarithmic Radix Binning and Vectorized Triangle Counting," Oded Green, James Fox, Alex Watkins, Alok Tripathy, Kasimir Gabert, Euna Kim, An Xiaojing, Kumar Aatish, and David A. Bader, *The 22nd Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 25-27, 2018. **Graph Challenge Innovation Award**.

315. "Skip the Intersection: Quickly Counting Common Neighbors on Shared-Memory Systems," Xiaojing An, Kasimir Gabert, James Fox, Oded Green, and David A. Bader, *The 23rd Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 24-26, 2019.

316. "Performance Impact of Memory Channels on Sparse and Irregular Algorithms," Oded Green, James Fox, Jeff Young, Jun Shirako, and David Bader, *The IEEE/ACM 9th Workshop on Irregular Applications: Architectures and Algorithms* (IA3), Denver, CO, November 18, 2019.

317. "Accelerating and Expanding End-to-End Data Science Workflows with DL/ML Interoperability Using RAPIDS," Bartley Richardson, Bradley Rees, Tom Drabas, Even Oldridge, David A. Bader, and Rachel Allen, *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (KDD), Virtual, August 23-27, 2020.

318. "GPU Accelerated Anomaly Detection of Large Scale Light Curves," Austin Chase Minor, Zhihui Du, Yankui Sun, David A. Bader, Chao Wu, and Jianyen Wei, *The 24th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 22-24, 2020.

319. "An Efficient LP Rounding Scheme for Replica Placement," Zhihui Du, Sen Zhang, David A. Bader, and Jingkun Hu, *The 24th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 22-24, 2020.

320. "Using RAPIDS AI to Accelerate Graph Data Science Workflows," Todd Hricik, David Bader, and Oded Green, *The 24th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 22-24, 2020.

321. "QoS-Aware and Fault-Tolerant Replica Placement," Jingkun Hu, Zhihui Du, Sen Zhang and David Bader, *The 20th International Conference on Algorithms and Architectures for Parallel Processing* (ICA3PP), Springer-Verlag LNCS 12453, 157-172, New York, NY, October 2-4, 2020.

322. "Large-Scale Graph Analytics in Arkouda," Oliver Alvarado Rodriguez, Zhihui Du, and David Bader, *The New Jersey Big Data Alliance Symposium* (NJBDA), hosted by Princeton University, April 29-30, 2021.

323. "LAGraph: Linear Algebra, Network Analysis Libraries, and the Study of Graph Algorithms," Gábor Szárnyas, David A. Bader, Timothy A. Davis, James Kitchen, Timothy G.

Mattson, Scott McMillan, and Erik Welch, *Workshop on Graphs, Architectures, Programming, and Learning* (GrAPL), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2021), Virtual, May 17, 2021.

324. "Exploratory Large Scale Graph Analytics in Arkouda," Zhihui Du, Oliver Alvarado Rodriguez, David A. Bader, Michael Merrill, and William Reus, *The 8th Annual Chapel Implementers and Users Workshop* (CHIUW), Virtual, June 4, 2021.

325. "K-Truss Implementation in Arkouda (Extended Abstract)," Joseph T Patchett, Zhihui Du, and David Bader, *The 25th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 20-24, 2021.

326. "A GraphBLAS implementation of Triangle Centrality," Fuhuan Li and David Bader, *The 25th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 20-24, 2021.

327. "Enabling Exploratory Large Scale Graph Analytics through Arkouda," Zhihui Du, Oliver Alvarado Rodriguez, and David Bader, *The 25th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 20-24, 2021.

328. "Large Scale String Analytics In Arkouda," Zhihui Du, Oliver Alvarado Rodriguez, and David Bader, *The 25th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 20-24, 2021.

329. "Anti-Section Transitive Closure," Oded Green, Zhihui Du, Sanyamee Patel, Zehui Xie, Hang Liu, and David A. Bader, *The 28th IEEE International Conference on High Performance Computing, Data, and Analytics* (HiPC), India, December 17-18, 2021.

330. "Truss Analytics Algorithms and Integration in Arkouda," Zhihui Du, Joseph Patchett, Oliver Alvarado Rodriguez and David A. Bader, *The 9th Annual Chapel Implementers and Users Workshop* (CHIUW), Virtual, June 10, 2022.

331. "Parallel Suffix Sorting for Large String Analytics," Zhihui Du, Sen Zhang, and David A. Bader, *14th International Conference on Parallel Processing and Applied Mathematics* (PPAM), Springer-Verlag LNCS 13826, 71-82, Gdansk, Poland, September 11-14, 2022.

332. "Arachne: An Arkouda Package for Large-Scale Graph Analytics," Oliver Alvarado Rodriguez, Zhihui Du, Joseph Patchett, Fuhuan Li and David Bader, *The 26th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 19-23, 2022.

333. "Triangle Centrality in Arkouda," Joseph Patchett, Zhihui Du, Fuhuan Li and David Bader, *The 26th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 19-23, 2022.

334. "High-Performance Truss Analysis in Arkouda," Zhihui Du, Joseph Patchett, Oliver Alvarado Rodriguez, Fuhuan Li, and David A. Bader, *The 29th IEEE International Conference*

on High Performance Computing, Data, and Analytics (HiPC), Bengaluru, India, December 18-21, 2022. (34 papers accepted out of 131 papers submitted: 25.95% acceptance rate)

335. "Billion-scale Detection of Isomorphic Nodes," Luca Cappelletti, Tommaso Fontana, Justin Reese and David Bader, *Workshop in Graphs, Architectures, Programming, and Learning* (GrAPL), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2023), St. Petersburg, FL, May 15, 2023.

336. "Parallel Triangles and Squares Count for Multigraphs using Vertex Covers," Luca Cappelletti, Tommaso Fontana, Oded Green and David Bader, *International Conference on Computational Science* (ICCS), Prague, Czech Republic, July 3-5, 2023. Springer-Verlag LNCS 10476, 635–646, 2023.

337. "Minimum-Mapping based Connected Components Algorithm," Zhihui Du, Oliver Alvarado Rodriguez, Fuhuan Li, Mohammad Dindoost, and David A. Bader, *The 10th Annual Chapel Implementers and Users Workshop* (CHIUW), Virtual, June 1-2, 2023.

338. "Parallel Longest Common SubSequence Analysis In Chapel," Soroush Vahidi, Baruch Schieber, Zhihui Du, and David A. Bader, *The 27th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 25-29, 2023.

339. "Property Graphs in Arachne," Oliver Alvarado Rodriguez, Fernando Vera Buschmann, Zhihui Du, and David A. Bader, *The 27th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 25-29, 2023.

340. "Triangle Counting Through Cover-Edges," David A. Bader, Fuhuan Li, Anya Ganeshan, Ahmet Gundogdu, Jason Lew, Oliver Alvarado Rodriguez, and Zhihui Du, *The 27th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 25-29, 2023. **Graph Challenge Student Innovation Award**.

341. "Fast Triangle Counting," David A. Bader, *The 27th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 25-29, 2023. **Graph Challenge Innovation Award**.

342. "Contour Algorithm for Connectivity," Zhihui Du, Oliver Alvarado Rodriguez, Fuhuan Li, Mohammad Dindoost, and David A. Bader, *The 30th IEEE International Conference on High Performance Computing, Data, and Analytics* (HiPC), Goa, India, December 18-21, 2023. (42 papers accepted out of 174 papers submitted: 24.1% acceptance rate)

343. "On the Design of Graph Analytical Software in Chapel," Oliver Alvarado Rodriguez, Zhihui Du, and David A. Bader, *The 11th Annual Chapel Implementers and Users Workshop* (ChapelCon), Virtual, June 5-7, 2024.

344. "Graph-Based Profiling of Dependency Vulnerability Remediation," Fernando Vera Buschmann, Palina Pauliuchenka, Ethan Oh, Bai Chien Kao, Louis DiValentin and David A. Bader, *6th International Conference on Science of Cyber Security* (SciSec), Copenhagen, Denmark, August 14-16, 2024.

345. "VF2-PS: Parallel and Scalable Subgraph Monomorphism in Arachne," Mohammad Dindoost, Oliver Alvarado Rodriguez, Sounak Bagchi, Palina Pauliuchenka, Zhihui Du, and David A. Bader, *The 28th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 23-27, 2024.

346. "A Deployment Tool for Large Scale Graph Analytics Framework Arachne," Garrett R. Gonzalez-Rivas, Zhihui Du, and David A. Bader, *The 28th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 23-27, 2024.

347. "Enhanced Knowledge Graph Attention Networks for Efficient Graph Learning," Fernando P. Vera Buschmann, Zhihui Du, and David A Bader, *The 28th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Virtual, September 23-27, 2024. **Outstanding Student Paper Award**.

G.3. Conference Presentations with Proceedings (non-refereed)

348. "DOSA: Design Optimizer for Scientific Applications," D.A. Bader and V.K. Prasanna, *NSF Next Generation Workshop*, Long Beach, CA, March 25-26, 2007.

349. "Lecture on Progress Toward Petascale Applications in Bioinformatics and Computational Biology," C.A. Stewart, M. Lingwall, and D.A. Bader, *7th IEEE International Conference on Bioinformatics and Bioengineering* (BIBE), p. 1458, Harvard Medical School, Boston, MA, October 14-17, 2007.

350. "DOSA: Design Optimizer for Scientific Applications," D.A. Bader and V.K. Prasanna, *NSF Next Generation Workshop*, Miami, FL, April 13-14, 2008.

G.4. Conference Presentations without Proceedings

351. "New approaches for using gene order data in phylogeny reconstruction," R.K. Jansen, D.A. Bader, B. M. E. Moret, L.A. Raubeson, L.-S. Wang, T. Warnow, and S. Wyman. *Botany 2001*, Albuquerque, NM, August 12-16, 2001.

352. "GRAPPA: a high-performance computational tool for phylogeny reconstruction from gene-order data," B. M.E. Moret, D.A. Bader, T. Warnow, S.K. Wyman, and M. Yan. *Botany 2001*, Albuquerque, NM, August 12-16, 2001.

353. "Inferring phylogenies of photosynthetic organisms from chloroplast gene orders," L.A. Raubeson, D.A. Bader, B. M.E. Moret, L.-S. Wang, T. Warnow, and S.K. Wyman. *Botany 2001*, Albuquerque, NM, August 12-16, 2001.

354. "Comparative chloroplast genomics of seed plants: integrating computational methods, phylogeny, and molecular evolution," Poster Session, T.J. Warnow, J.L. Boore, H.M. Fourcade, R.K. Jansen, R. Haberle, T.W. Chumley, L. Raubeson, S. Wyman, C. dePamphilis, B. Moret, D. Bader, W. Miller, *Evolution 2003*, Chico, CA, June 20-24, 2003.

355. "Scalable Graph Algorithms for Shared Memory," D.A. Bader, *11th SIAM Conference on Parallel Processing for Scientific Computing* (PP04), San Francisco, CA, February 25-27, 2004.

356. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," D.A. Bader, Minisymposium on Parallel Computational Biology, *11th SIAM Conference on Parallel Processing for Scientific Computing* (PP04), San Francisco, CA, February 25-27, 2004.

357. "Fast, Sparse Graph Algorithms using Symmetric Multiprocessors," D.A. Bader, Minisymposium on Combinatorial Algorithms and Parallel Computing, *11th SIAM Conference on Parallel Processing for Scientific Computing* (PP04), San Francisco, CA, February 25-27, 2004.

358. "Dynamic Computations in Large-Scale Graphs," D.A. Bader, Minisymposium on Data-Aware Parallel Computing, *12th SIAM Conference on Parallel Processing for Scientific Computing* (PP06), San Francisco, CA, February 22-24, 2006.

359. "Efficient Shared-memory Algorithms and Implementations for Solving Large-scale Graph Problems," D.A. Bader and K. Madduri, Minisymposium on High-Performance Computing with Large Graphs, *2006 SIAM Annual Meeting* (AN06), Boston, MA, July 10-14, 2006.

360. "FFTC: Fastest Fourier Transform for the IBM Cell Broadband Engine," D.A. Bader, V. Agarwal, *The 11th Annual High Performance Embedded Computing Workshop* (HPEC), Lexington, MA, September 18-20, 2007.

361. "Irregular Algorithms on the Cell Broadband Engine," D.A. Bader, Minisymposium on High Performance Computing on the Cell Processor, *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 12, 2008.

362. "Accelerators, Cell Broadband Engine, Graphics Processors, and FPGAs," D.A. Bader, Minisymposium on Future Challenges in High Performance Computing for Algorithm and Tool Developers, *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 13, 2008.

363. "Parallel Algorithms for Small-world Network Analysis and Partitioning," D.A. Bader, Minisymposium on HPC on Large Graphs, *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 13, 2008.

364. "Accelerating Combinatorial Scientific Computing with the Cell Broadband Engine Processor," D.A. Bader, Minisymposium on Revolutionary Technologies for Acceleration of Emerging Petascale Applications, *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 13, 2008.

365. "Optimizing Discrete Wavelet Transform on the Cell Broadband Engine," S. Kang and D.A. Bader, *The 12th Annual High Performance Embedded Computing Workshop* (HPEC), Lexington, MA, September 23-25, 2008.

366. "High Reynolds Number Turbulence at Petascale," D. Pekurovsky, P.K. Yeung, D.A. Bader, R.D. Moser, J.J. Riley, A. Majumdar, D.A. Donzis, *Pathways to Blue Waters: Communication Intensive Algorithms and Applications*, Urbana, IL, October 15-17, 2008. (invitation-only)

367. "Exascale Analytics for Massive Social Networks," D.A. Bader, Minisymposium on High-Performance Computing on Massive Real-World Graphs, *2009 SIAM Annual Meeting* (AN09), Denver, CO, July 6-10, 2009.

368. "Parallel Algorithms for Social Network Analysis," D.A. Bader, Minisymposium on Parallel Algorithms and Software for Massive Graphs, *14th SIAM Conference on Parallel Processing for Scientific Computing* (PP10), Seattle, WA, February 25, 2010.

369. "Modularity and Graph Algorithms," J.P. McCloskey and D.A. Bader, *Minisymposium on Analyzing Massive Real-World Graphs, 2010 SIAM Annual Meeting* (AN10), Pittsburgh, PA, July 12-16, 2010.

370. "Large Scale Complex Network Analysis Using the Hybrid Combination of a MapReduce Cluster and a Highly Multithreaded System," S. Kang and D.A. Bader, *The 14th Annual High Performance Embedded Computing Workshop* (HPEC), Lexington, MA, September 15-16, 2010.

371. "Computing Betweenness Centrality for Small World Networks on a GPU," P. Pande and D.A. Bader, *The 15th Annual High Performance Embedded Computing Workshop* (HPEC), Lexington, MA, September 21-22, 2011.

372. "Parallel Community Detection in Streaming Graphs," H. Meyerhenke, E.J. Riedy, and D.A. Bader, Minisymposium on Parallel Analysis of Massive Social Networks, *15th SIAM Conference on Parallel Processing for Scientific Computing* (PP12), Savannah, GA, February 15-17, 2012.

373. "Analyzing Massive Networks with GraphCT," D. Ediger, E.J. Riedy, H. Meyerhenke, and D.A. Bader, Poster Session, *15th SIAM Conference on Parallel Processing for Scientific Computing* (PP12), Savannah, GA, February 15-17, 2012.

374. "Many-Core Memory Hierarchies and Parallel Graph Analysis," R.C. McColl, D. Ediger, and D.A. Bader, Poster Session, *15th SIAM Conference on Parallel Processing for Scientific Computing* (PP12), Savannah, GA, February 15-17, 2012.

375. "STING: Software for Analysis of Spatio-Temporal Interaction Networks and Graphs," E.J. Riedy, D. Ediger, H. Meyerhenke, and D.A. Bader, Poster Session, *15th SIAM Conference on Parallel Processing for Scientific Computing* (PP12), Savannah, GA, February 15-17, 2012.

376. "Applications and Challenges in Large-scale Graph Analysis," D.A. Bader, H. Meyerhenke, and E.J. Riedy, Minisymposium on Frontiers in Large-Scale Graph Analysis, *2013 SIAM Conference on Computational Science and Engineering* (CSE13), Boston, MA, February 25 - March 1, 2013.

377. "Analyzing Graph Structure in Streaming Data with STINGER," R.C. McColl, D. Ediger, D.A. Bader, and E.J. Riedy, Minisymposium on Frontiers in Large-Scale Graph Analysis, *2013 SIAM Conference on Computational Science and Engineering* (CSE13), Boston, MA, February 25 - March 1, 2013.

378. "PASQUAL: Parallel Techniques for Next Generation Genome Sequence Assembly," X. Liu, P. Pande, H. Meyerhenke, and D.A. Bader, Minisymposium on Scalable Graph-theoretic Models for Computational Biology, *2013 SIAM Conference on Computational Science and Engineering* (CSE13), Boston, MA, February 25 - March 1, 2013.

379. "The Graph BLAS effort and its implications for Exascale," D.A. Bader, A. Buluç, J. Gilbert, J. Gonzalez, J. Kepner and T. Mattson, *SIAM Workshop on Exascale Applied Mathematics Challenges and Opportunities* (EX14), Chicago, IL, July 6, 2014.

380. "Scalable and Efficient Algorithms for Analysis of Massive, Streaming Graphs," E.J. Riedy and D.A. Bader, Minisymposium on Scalable Network Analysis: Tools, Algorithms, Applications, *16th SIAM Conference on Parallel Processing for Scientific Computing* (PP16), Paris, France, April 12-15, 2016.

381. "New Stopping Criteria for Spectral Partitioning (extended abstract)," J. Fairbanks, A. Zakrewska, and D.A. Bader, *SIAM Workshop on Network Science* (NS16), Boston, MA, July 15-16, 2016. (14 papers accepted: 16% acceptance rate)

382. "Massive-Scale Streaming Analytics for Dynamic Graphs," D.A. Bader, Minisymposium on Advances in Dynamic Graphs: Algorithms, Applications and Challenges, *2017 SIAM Conference on Computational Science and Engineering* (CSE17), Atlanta, GA, February 27 - March 3, 2017.

383. "Ranking in Graphs by Numerically Approximating Katz Centrality," E. Nathan, G. Sanders, and D.A. Bader, *SIAM Workshop on Network Science* (NS17), Pittsburgh, PA, July 13-14, 2017. (16 papers accepted: 16% acceptance rate)

384. "A New Algorithm Model for Massive-Scale Streaming Graph Analysis," C. Yin, J. Riedy, and D.A. Bader, *SIAM Workshop on Network Science* (NS17), Pittsburgh, PA, July 13-14, 2017. (16 papers accepted: 16% acceptance rate)

385. "Massive-Scale Streaming Analytics," D.A. Bader, Minisymposium on Scalable and Dynamic Graph Algorithms, *17th SIAM Conference on Parallel Processing for Scientific Computing* (PP18), Tokyo, Japan, March 7-10, 2018.

386. "Tracking Communities in Streaming Graphs," D.A. Bader, Minisymposium on High Performance Graph Algorithms, *The 5th ACM Platform for Advanced Scientific Computing Conference* (PASC), Basel, Switzerland, July 3, 2018.

387. "A New Algorithm Model for Massive-Scale Streaming Graph Analysis," C. Yin, J. Riedy, and D.A. Bader, Minisymposium on Mining and Modeling Evolving and Higher-Order

Complex Data and Networks, *9th International Congress on Industrial and Applied Mathematics* (ICIAM), Valencia, Spain, July 15-19, 2019.

388. "High Performance Data Analytics," D.A. Bader, *EdgeCon 2021*, New Jersey, January 7, 2021.

389. "Interactive Data Science at Scale," D.A. Bader, *Big Data Analytics Workshop (BigDAW)*, co-located with the ACM International Conference on Computing Frontiers 2021, Virtual, May 13, 2021.

390. "Massive Graph Analytics in Arkouda," D.A. Bader, Minisymposium on Scaling Data Science, AI, and, ML on Massively Multi-Threaded Systems, *2023 SIAM Conference on Computational Science and Engineering* (CSE23), Amsterdam, The Netherlands, February 26 - March 3, 2023.

391. "Contour Algorithm for Connectivity," Z. Du, D.A. Bader, O. Alvarado Rodriguez, F. Li, M. Dindoost, Minisymposium on Recent Advances in Scientific Computing and Data Science, *2023 SIAM New York - New Jersey - Pennsylvania Section Conference* (NNP23), Newark, NJ, October 20-22, 2023.

392. "Arachne: High-Performance Algorithms and Software for Large-Scale Graph Analytics," O. Alvarado Rodriguez, Z. Du, D.A. Bader, *2023 SIAM New York - New Jersey - Pennsylvania Section Conference* (NNP23), Newark, NJ, October 20-22, 2023.

393. "Arachne: A Productive Massive-Scale Graph Analytics Framework," Oliver Alvarado Rodriguez, Zhihui Du, and David A. Bader, Minisymposium on Large Scale Graph Analytics, *The 20th SIAM Conference on Parallel Processing for Scientific Computing* (PP24), Baltimore, MD, March 5, 2024.

394. "Large-Scale Graph Analytics for Connectomics," David A. Bader, *Connectomics Conference 2024*, Harnack-Haus of the Max Planck Society, Berlin, Germany, June 18, 2024.

395. "Efficient Diameter Algorithm for Large Graphs," Z. Du and D.A. Bader, Minisymposium on Recent Advances in Scientific Computing and Data Science, *2024 SIAM New York - New Jersey - Pennsylvania Section Conference* (NNP24), Rochester Institute of Technology, NY, November 1-3, 2024.

G.5. Conference Tutorials (peer-reviewed)

396. "Design and Analysis of NT and Linux Superclusters for Computational Grids," Robert Pennington, David A. Bader, and Arthur B. Maccabe, *The IEEE and ACM Supercomputing Conference 1999* (SC99), Portland, OR, November 15, 1999.

397. "Design and Analysis of High Performance Clusters," Robert Pennington, Patricia Kovatch, Arthur B. Maccabe, and David A. Bader, *The IEEE and ACM Supercomputing Conference 2000* (SC2000), Dallas, TX, November 5, 2000.

398. "Parallel Programming for Cluster Computers," David A. Bader, Bruce Hendrickson, and Steve Plimpton, *The IEEE and ACM Supercomputing Conference 2000* (SC2000), Dallas, TX, November 6, 2000.

399. "Opportunities and Challenges in Computational Biology," Srinivas Aluru and David A. Bader, *The IEEE and ACM Supercomputing Conference 2002* (SC2002), Baltimore, MD, November 17, 2002.

400. "Computational Grand Challenges in Assembling the Tree of Life: *Problems & Solutions*," David A. Bader, Usman Roshan, and Alexandros Stamatakis, *The IEEE and ACM Supercomputing Conference 2005* (SC2005), Seattle, WA, November 13, 2005.

401. "High-Performance Computing Methods for Computational Genomics," Srinivas Aluru, David A. Bader, and Ananth Kalyanaraman, *The IEEE and ACM Supercomputing Conference 2006* (SC2006), Tampa, FL, November 13, 2006.

402. "High-Performance Computing Methods for Computational Genomics," Srinivas Aluru, David A. Bader, and Ananth Kalyanaraman, *The 21st IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2007), Long Beach, CA, March 27, 2007.

403. "Parallel Programming for Graph Analysis," David A. Bader, David Ediger, E. Jason Riedy, *The 16th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming* (PPoPP 2011), San Antonio, TX, February 12, 2011.

404. "Parallel Programming for Graph Analysis," David A. Bader, David Ediger, E. Jason Riedy, full-day tutorial, Columbia, MD, September 28, 2011.

405. "Parallel Programming for Graph Analysis," David A. Bader, David Ediger, E. Jason Riedy, *The 17th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming* (PPoPP 2012), New Orleans, LA, February 25, 2012.

406. "Fundamentals of Super Computing," David A. Bader, *The IEEE and The Optical Society's OFC/NFOEC 2013 Technical Conference*, Anaheim, CA, March 17, 2013.

407. "Massive-Scale Graph Analytics," David A. Bader, *International Spring School on High Performance Computing (HighPer)*, San Sebastián / Donostia, Spain, April 23-27, 2018.

408. "Accelerating and Expanding End-to-End Data Science Workflows with DL/ML Interoperability Using RAPIDS," Bartley Richardson, Brad Rees, David A. Bader, Keith Kraus, Tom Drabas, *ACM KDD*, San Diego, CA, August 23-27, 2020.

409. "Interactive Large-Scale Data and Graph Analytics," Oliver Alvarado Rodriguez, Naren Khatwani, David A. Bader, and Zhihui Du, *ACM Principles and Practice of Parallel Programming (PPoPP)*, Montreal, Canada, February 25 - March 1, 2023.

410. "Master Class: Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," David A. Bader, *2024 Knowledge Graph Conference*, Cornell Tech, New York, NY, May 7, 2024.

H. Other

H.1. Software (released as Open Source)

411. **STINGER**

Spatio-Temporal Interaction Networks and Graphs, Extensible Representation. STINGER is a software package with data structure and algorithms for streaming graph analytics. The data structure is efficient for storing sparse dynamic graphs with temporal and semantic information encoded in the graph. Analytics include: Streaming clustering coefficients, Streaming connected components, Streaming community detection, Parallel agglomerative clustering, Streaming Betweenness Centrality, Incremental PageRank, Seed Set Expansion, K-core Extraction, Classic breadth-first search.

412. **HORNET**

A scalable and dynamic data structure for graph algorithms and linear-algebra based problems targeting accelerators such as NVIDIA GPU. HORNET is derived from STINGER.

413. **CellBuzz** (`cellbuzz-1.0`)

Cell Broadband Engine Processor optimized libraries from Georgia Tech, for example for FFT, MPEG, compression, and encryption. For example, FFTC runs faster than the FFTW package on Cell for moderate-sized transforms.

414. **GRAPPA** (`GRAPPA-1.6`)

GRAPPA is software for Genome Rearrangements Analysis under Parsimony and other Phylogenetic Algorithms. Phylogenies derived from gene order data may prove crucial in answering some fundamental open questions in biomolecular evolution. Yet very few techniques are available for such phylogenetic reconstructions. One method is *breakpoint analysis*, developed by Blanchette and Sankoff for solving the "breakpoint phylogeny." Our earlier studies confirmed the usefulness of this approach, but also found that `BPAnalysis`, the implementation developed by Sankoff and Blanchette, was too slow to use on all but very small datasets. We have re-implemented `BPAnalysis` using the principles of algorithmic engineering. Our faster (by 2 to 3 orders of magnitude) and flexible implementation allowed us to conduct studies on the characteristics of breakpoint analysis, in terms of running time, quality, and robustness, as well as to analyze datasets that had so far been considered out of reach.

`GRAPPA` also provides the first linear-time implementation of inversion distance. Hannenhalli and Pevzner gave the first polynomial-time algorithm for computing the inversion distance between two signed permutations, as part of the larger task of determining the shortest sequence of inversions needed to transform one permutation into the other. Their algorithm (restricted to distance calculation) proceeds in two stages: in the first stage, the overlap graph induced by the permutation is decomposed into connected components, then in the second stage certain graph structures (hurdles and others) are identified. Berman and Hannenhalli avoided the explicit computation of the overlap graph and gave an $O(n\alpha(n))$ algorithm,

based on a Union-Find structure, to find its connected components, where $\alpha(n)$ is the inverse Ackerman function. Since for all practical purposes $\alpha(n)$ is a constant no larger than four, this algorithm has been the fastest practical algorithm to date. In this code, we implement a new linear-time algorithm for computing the connected components, which is more efficient than that of Berman and Hannenhalli in both theory and practice. Our algorithm uses only a stack and is very easy to implement.

415. **Minimum Spanning Forest** (`mst-1.0`)

Most of the previous attempts for improving the speed of Minimum Spanning Tree (MST) using parallel computing are too complicated to implement or perform well only on special graphs with regular structure. This parallel code (a module for SIMPLE/SMP) provides implementations of four parallel MST algorithms (three variations of Borůvka plus our new approach) for arbitrary sparse graphs that for the first time give speedup when compared with the best sequential algorithm. In fact, our algorithms also solve the minimum spanning forest problem. Our new implementation achieves good speedups over a wide range of input graphs with regular and irregular structures, including the graphs used by previous parallel MST studies.

416. **Spanning Tree** (`spantree-1.0`)

The code provides an implementation of parallel spanning tree algorithms for SMPs, as a module for SIMPLE/SMP. This new randomized algorithm and implementation has superior performance that for the first-time achieves parallel speedup on arbitrary graphs (both regular and irregular topologies) when compared with the best sequential implementation for finding a spanning tree.

417. **ParJedi** (`parjedi-1.0`)

This parallel code (a SIMPLE/SMP module) provides an implementation of a parallel algorithm for state assignment of large Finite State Machines. High performance CAD tools are necessary to overcome the computational complexity involved in the optimization of large sequential circuits. FSMs constitute an important class of logic circuits and state assignment is one of the key steps in combinational logic optimization. The SMP-based parallel algorithm, based on the sequential program JEDI targeting multilevel logic implementation, scales nearly linearly with the number of processors for FSMs of varying problem sizes chosen from standard benchmark suites while attaining quality of results comparable to the best sequential algorithms.

418. **Expression Evaluation using Tree Contraction** (`rake-1.0`)

This parallel code (a SIMPLE/SMP module) evaluates arithmetic expression trees using the algorithmic techniques of list ranking and tree contraction; this problem is not only of interest in its own right, but is representative of a large class of irregular combinatorial problems that have simple and efficient sequential implementations and fast PRAM algorithms, but have no known efficient parallel implementations.

419. **Parallel List Ranking** (`listrank-2.0`)

This SIMPLE/SMP module implements a randomized, parallel code for link ranking. Helman and JáJá introduce a new optimal prefix computation algorithm on linked lists which builds upon the sparse ruling set approach of Reid-Miller and Blelloch. Besides being somewhat simpler and requiring nearly half the number of memory accesses, and can bound our complexity with high probability instead of merely on average. Moreover, whereas Reid-Miller and Blelloch targeted their algorithm for implementation on a vector multiprocessor architecture, they develop an algorithm for implementation on the symmetric multiprocessor architecture (SMP). These symmetric multiprocessors dominate the high-end server market and are currently the primary candidate for constructing large scale multiprocessor systems. The authors ran this code using a variety of benchmarks which they identified to examine the dependence of the algorithm on memory access patterns. For some problems, their algorithm actually matched or exceeded the optimal sequential solution using only a single thread. Moreover, in spite of the fact that the processors must compete for access to main memory, their algorithm still resulted in scalable performance up to 16 processors, which was the largest platform available to them.

420. **SIMPLE** (`simple-4.4H`)

SIMPLE is a framework for implementation of parallel algorithms using our methodology for developing high performance programs running on clusters of SMP nodes. Our methodology is based on a small kernel (SIMPLE) of collective communication primitives that make efficient use of the hybrid shared and message passing environment. We illustrate the power of our methodology by presenting experimental results for sorting integers, two-dimensional fast Fourier transforms (FFT), and constraint-satisfied searching.

421. **Cycle Detection of Partitioned Planar Digraphs** (`cycledetect-1.0`)

This package provides an MPI implementation of a new, parallel algorithm for detecting cycles in partitioned, planar directed graphs that is both scalable in the graph and machine size, and performs well in practice. As an example, on a $p = 64$ processor cluster, we have solved an extremely large and difficult input problem with $n = 2^{28}$ vertices in less than five minutes.

422. **Parallel Sorting using Sampling with Randomized and Deterministic Approaches** (`psort-1.0`)

Previous schemes for sorting on general-purpose parallel machines have had to choose between poor load balancing and irregular communication or multiple rounds of all-to-all personalized communication. This code provides a sample sort which uses only two rounds of regular all-to-all personalized communication in a scheme that yields very good load balancing with virtually no overhead. Moreover, unlike previous variations, our algorithm efficiently handles the presence of duplicate values without the overhead of tagging each element with a unique identifier.This implementation of our new algorithm using Split-C seems to outperform all similar algorithms known to the authors, and its performance is invariant over the set of input distributions unlike previous efficient algorithms.

The code also provides a new deterministic parallel sorting algorithm based on the regular sampling approach. The performance compares closely to that of our random sample sort

algorithm, which seems to outperform all similar algorithms known to the authors on these platforms. Together, their performance is nearly invariant over the set of input distributions, unlike previous efficient algorithms. However, unlike our randomized sorting algorithm, the performance and memory requirements of our regular sorting algorithm can be deterministically guaranteed.

423. **Parallel Sorting using Regular Sampling** (`psrs-1.0`)

This package provides an MPI implementation of Parallel Sorting by Regular Sampling, an algorithm from Shi and Schaeffer.

424. **Parallel Selection and Median Finding** (`mpiselect-1.4A`)

A common statistical problem is that of finding the median element in a set of data. This parallel MPI code implements an efficient, randomized high-level parallel algorithms for finding the median given a set of elements distributed across a parallel machine. In fact, our algorithm solves the general selection problem that requires the determination of the element of rank k, for an arbitrarily given integer k. We use efficient techniques for distributing and coalescing data as well as efficient combinations of task and data parallelism. The algorithms have been coded in the message passing standard MPI, and our experimental results from the IBM SP-2 illustrate the scalability and efficiency of our algorithm and improve upon all the related experimental results known to the authors.

425. **Parallel Combinatorial Algorithms** (`imageU-3.8`)

This code provides efficient and portable implementations of useful image processing algorithms, histogramming, connected components, image enhancement, and segmentation, as well parallel codes for combinatorial problems such as routing h-relations, sorting and selection. The algorithms have been coded in Split-C and provide the best known execution times for these approaches, even when compared with machine specific implementations.

H.2. Published Papers (non-refereed)

426. "Editorial: A New, Architectural Paradigm for High-performance Computing," D.A. Bader, *Parallel and Distributed Computing Practices Journal*, 2(2), 1999.

427. "Book Reviews: A Guide to Experimental Algorithmics, by Catherine C. McGeoch," D.A. Bader, *INFORMS Journal on Computing*, 25(3), 2013.

H.3. Additional Technical Reports

428. "Table of Lower Bounds on the Minimum Distance of Cyclic and BCH Codes," with P. J. Stinson. NSF Research Experience for Undergraduates (REU) Program Summer Project Report, Lehigh University Research Report CSEE-TR-90-06, Department of Computer Science and Electrical Engineering, Lehigh University, 1989.

429. "PARSIM: A Simulator for Designing Parallel Algorithms and Architectures," Lehigh University Research Report CSEE-TR-90-07, Department of Computer Science and Electrical Engineering, Lehigh University, 1990.

430. "Object Oriented Simulation of Systems With Examples in Structural Design And Parallel Processing," Master's Thesis, Department of Computer Science and Electrical Engineering, Lehigh University, January 1992.

431. "End-to-end resource analysis for quantum interior point methods and portfolio optimization," Alexander M. Dalzell, B. David Clader, Grant Salton, Mario Berta, Cedric Yen-Yu Lin, David A. Bader, Nikitas Stamatopoulos, Martin J. A. Schuetz, Fernando G. S. L. Brandão, Helmut G. Katzgraber, William J. Zeng, Arxiv, November 2022. https://doi.org/10.48550/arXiv.2211.12489

I. Research Proposals and Grants (Principal Investigator)

1. NASA NGT-50951, Graduate Student Researcher Fellowship, $88,000, 1992 – 1996.
2. NSF CISE 96-25668, CISE Postdoctoral Research Associate in Computational Science & Engineering Science: High Performance Computing for Remote Sensing Applications, 1996–1998.
3. NRC 9601610, Research Associateship Award, $42,500, 1996–1997. (*awarded, but not accepted because I had already accepted the NSF Postdoctoral award*)
4. DOE Sandia National Laboratories, Sandia University New Assistant Professorship Program (SUNAPP) Award, PI: D.A. Bader, approx. $130,000. Collaborative research with the Algorithms & Discrete Math Department at SNL developing methodologies for high performance computing on clusters of symmetric multiprocessors. Contract Number AX-3006, $30,000, 9/01/1998 – 8/31/1999.
5. DOE Sandia National Laboratories, Sandia University New Assistant Professorship Program (SUNAPP) Award, PI: D.A. Bader, approx. $130,000. Collaborative research with the Algorithms & Discrete Math Department at SNL developing methodologies for high performance computing on clusters of symmetric multiprocessors. Contract Number AX-3006, $30,000, 10/01/1999 – 9/30/2000.
6. NSF DEB 99-10123, "Ecosystem Studies: Self-Organization of Semi-Arid Landscapes: Test of Optimality Principles," PIs: B.T. Milne, D.A. Bader, W.T. Pockman, C. Restrepo, National Science Foundation, Division of Environmental Biology, $674,911, 1/1/2000 – 2/29/2004.
7. NSF ITR 00-81404, "ITR/ACS: Algorithms for Irregular Discrete Computations on SMPs," PIs: B.M. Moret and D.A. Bader, National Science Foundation, Information Technology Research Program, $452,052, 9/1/2000 – 1/31/2004.
8. DOE Sandia National Laboratories, Computer Science Research Institute Award. "High Performance Computing Algorithms and Applications," PI: D.A. Bader, Contract Number 14968, $35,000, 11/28/2000 – 7/14/2001.

9. NSF CAREER 00-93039, "CAREER: High-Performance Algorithms for Scientific Applications," PI: D.A. Bader, National Science Foundation, Faculty Early Career Development (CAREER) Program, $635,641 (NSF portion: $385,641, UNM cost share: $250,000), 9/1/2001 – 8/31/2006. Research Experiences for Undergraduate (REU) supplement: $12,000.
10. NSF EIA 01-21377, "Collaborative Research: ITR/AP Reconstructing Complex Evolutionary Histories," PIs: B.M.E. Moret and D.A. Bader (New Mexico); T. Warnow, R. Jansen, and R. Linder (Texas-Austin); National Science Foundation, Information Technology Research (ITR) Program, $792,540 (UNM portion), 9/15/2001 – 9/30/2006.
11. NSF DEB 01-20709, "Comparative Chloroplast Genomics: Integrating Computational Methods, Molecular Evolution, and Phylogeny," PIs: R. Jansen, T. Warnow, (Texas-Austin); L. Raubeson (Central Washington); B.M.E. Moret and D.A. Bader (New Mexico); C. dePamphilis and W. Miller (Penn State); J. Boore (DOE Joint Genome Institute); National Science Foundation, Biocomplexity in the Environment (BE): Genome-Enabled Environmental Science and Engineering (GEN-EN) Program; 10/1/2001 – 9/30/2006, $1.35M (total); $192,599 (UNM subcontract).
12. DOE Sandia National Laboratories, Computer Science Research Fund, "Enabling PetaFLOPs Computing Applications," PI: D.A. Bader, Contract Number 27983, $100,000, 2/1/2002 – 1/31/2003.
13. IBM / DARPA, "PERCS Productive, Easy-to-Use, Reliable Computing Systems," UNM PIs: D.A. Bader and B.M.E. Moret, High Productivity Computing Systems (Phase 1) Program, $3M (total); $65,000 (UNM portion), 7/15/2002 – 9/16/2003.
14. NSF EIA 02-03584, "Postdoc: A Hierarchical Methodology for SMP Clusters," PIs: B.M.E. Moret and D.A. Bader, National Science Foundation, CISE Postdoctoral Research Associate in Experimental Computer Science, $138,072 (NSF portion: $66,000, UNM cost share: $72,072), 8/1/2002 – 7/31/2004.
15. Alfred P. Sloan Foundation, "Postdoctoral Fellowship in Computational Molecular Biology for Dr. Tiffani L. Williams," PIs: B.M.E. Moret and D.A. Bader, Sloan Foundation and Department of Energy, $152,072 (Sloan/DOE portion: $120,000, UNM cost share: $32,072), 8/1/2002 – 7/31/2004.
16. DOE Sandia National Laboratories, Combinatorial Algorithms for Homeland Defense, PI: D.A. Bader, Contract Number 55856, $29,735, 8/26/2002 – 5/30/2003.
17. IBM / DARPA, "PERCS Productive, Easy-to-Use, Reliable Computing Systems," UNM PIs: D.A. Bader, B.M.E. Moret, A.B. Maccabe, P.G. Bridges, High Productivity Computing Systems (Phase 2) Program, $53.3M (total); $900,000 (UNM portion, from DARPA; $600K, and UNM cost share: $300K), 7/15/2003 – 9/16/2006.
18. DOE Sandia National Laboratories, Parallel Algorithms for Computational Electromagnetics, PI: D.A. Bader, Contract Number 161449, $13,000, 8/1/2003 – 7/31/2004.
19. NSF Emerging Frontiers / BIO 03-31654, "ITR Collaborative Research: Building the Tree of Life – A National Resource for Phyloinformatics and Computational Phylogenetics," PI:

B.M.E. Moret (U New Mexico); coPI's: D.A. Bader (U New Mexico), F. Berman (UC San Diego), P. Bourne (UC San Diego), M. Donoghue (Yale), D.M. Hillis (U Texas-Austin), W. Hunt (U Texas-Austin), J. Kim (U Pennsylvania), P. Lewis (U Connecticut), D. Maddison (U Arizona), W. Maddison (U Arizona), D. Miranker (U Texas-Austin), B. Mischler (UC Berkeley), L. Meyers (U Texas-Austin), E. Myers (UC Berkeley), S. Rao (UC Berkeley), S. Russell (UC Berkeley), D. Swofford (Florida State U), T. Warnow (U Texas-Austin), W. Wheeler (American Museum of Natural History), T. Williams (U New Mexico); National Science Foundation, Information Technology Research Program, $11.6M Total, (UNM: $3,540,907), 10/1/2003 – 9/30/2008.

20. DOE Sandia National Laboratories, Innovative Parallel Algorithms for Computational Electromagnetics, PI: D.A. Bader, Contract Number 305103, $29,640, 6/1/2004 – 5/31/2005.
21. NSF DBI 04-20513, "Acquisition of a High Performance Shared-Memory Computer for Computational Science and Engineering at the University of New Mexico," PIs: H. Guo, D.A. Bader, S.R. Atlas, M.S. Ingber, and T. Oprea. National Science Foundation, Major Research Instrumentation Program, $350,378 (NSF), $150,162 (UNM cost share), 9/1/2004 – 8/31/2007.
22. DOE Sandia National Laboratories, Designing Parallel Graph Algorithms for Multi-Threaded Architectures, PI: D.A. Bader, $73,000, 1/1/2005 – 12/31/2005.
23. Los Alamos National Laboratory, LinuxBIOS support on advanced 64-bit systems, PI: D.A. Bader, $40,000, 1/1/2005 – 12/31/2005.
24. NSF CCF 05-29795, "CAREER: High-Performance Algorithms for Scientific Applications, Research Experiences for Undergraduate (REU) Supplement" PI: D.A. Bader, National Science Foundation, Faculty Early Career Development (CAREER) Program, 5/27/2005 – 5/31/2006. $15,000.
25. Los Alamos National Laboratory, Performance Evaluation of Large-Scale Parallel Programs, PI: D.A. Bader, $75,000, 9/1/2005 – 6/30/2006.
26. NSF CCF 06-11589, "CAREER: High-Performance Algorithms for Scientific Applications," PI: D.A. Bader, National Science Foundation, Faculty Early Career Development (CAREER) Program, $96,037 (NSF portion, transfered from NSF 00-93039), $12,000 (new NSF Research Experience for Undergraduates supplement), $42,109 (Georgia Tech cost share), 12/1/2005 – 12/31/2006.
27. NSF CNS 06-14915, "Collaborative Research: CSR—AES: A Framework for Optimizing Scientific Applications," Lead PI: David A. Bader, and USC PI: Viktor Prasanna (U Southern California), National Science Foundation, Computer Systems Research, $200,000 Total (Georgia Tech portion: $100,000), 6/15/06 - 6/14/08.
28. NSF DBI 06-32517, "Workshop Proposal: Petascale Computing in the Biosciences is Being Held on August 29-30, 2006 in Arlington, VA.," PIs: Allan Snavely (University of California, San Diego), David A. Bader, and Gwen A. Jacobs (Montana State University), Biological Sciences Directorate National Science Foundation, $54,488, 8/15/06 - 7/31/07.

29. IBM Faculty Fellowship Award, "Optimizing Data-Intensive Applications for Cell BE," $40,000, 7/1/2006.
30. NASA ARC 5119/NNA06CN37H, "Performance Analysis and Optimization of NASA Scientific Applications on the NAS Supercomputers," NASA Graduate Student Researcher Program (GSRP) Fellowship for Kamesh Madduri, NASA NP-2005-07-375-HQ, $24,000, 10/1/2006-9/30/2007.
31. Sony-Toshiba-IBM Cell Center of Competence, Director: D.A. Bader; Associate Directors: Santosh Pande, Karsten Schwan, and Irfan Essa, Supported by an award from IBM Corp. and Sony Corp., $320,000, 11/1/2006.
32. Microsoft Research, "Enabling MS Visual Studio Programmers to Design Efficient Parallel Algorithms for Multi-Core Processors," External Research & Programs "Parallel and Concurrent Programming 2006-2007" Program, $75,000, 10/24/2006.
33. NASA ARC, "Performance Analysis and Optimization of NASA Scientific Applications on the NAS Supercomputers," NASA Graduate Student Researcher Program (GSRP) Fellowship for Kamesh Madduri (Second Year Renewal), $30,000, 10/1/2007-9/30/2008.
34. NIH R01 GM083621, "Combinatorial and Computational Methods for the Analysis, Prediction, and Design of Viral RNA Structures," PIs: Christine Heitsch, David A. Bader, Steve Harvey. NSF-NIH Joint DMS/NIGMS Initiative to Support Research in the Area of Mathematical Biology, National Institutes of Health, $720,000, 9/1/07 - 8/31/12.
35. NSF CNS-0708307, "Collaborative Research: CRI: IAD: Development of a Research Infrastructure," PIs: Jay Brockman (University of Notre Dame), David A. Bader, Guang Gao (University of Delaware), John Gilbert (University of California, Santa Barbara), Ed Upchurch (California Institute of Technology), Kathy Yelick (University of California, Berkeley), Computing Research Infrastructure (CRI) Program, National Science Foundation, $787,150, 8/1/07 - 7/31/12.
36. "Focused Research Program in High-Performance Computing," Coordinator: David A. Bader, and 29 other Engineering, Sciences, and Computing faculty, Georgia Institute of Technology, 8/1/07 - 7/30/08, $30,000 May 30, 2007. (Georgia Tech selects five FRP proposals for award each year.)
37. NSF OCI-0749223, "Collaborative Research: Enabling Discovery in High Reynolds Number Turbulence via Advanced Tools for Petascale Simulation and Analysis," Lead PI: Pui-Kuen Yeung, coPIs: David A. Bader; Amitava Majumdar, Dmitry Pekurovsky (University of California, San Diego), James J. Riley (University of Washington), Robert D. Moser (University of Texas at Austin) ; National Science Foundation, Accelerating Discovery in Science and Engineering Through Petascale Simulations and Analysis (PetaApps), $1.6M, 10/1/07 - 9/30/12.
38. MIT Lincoln Laboratory, "High Performance Computing for Massive Graph Analysis," $50,000, 4/1/2008-10/31/2008.
39. Department of Defense, "DoD HPCMP JEOM Summer Intern Program at Georgia Tech," PI: D.A. Bader, coPIs: H. Kim, R. Vuduc, N. Clark, $143,070, 5/17/2008-7/31/2009.

40. NVIDIA Professor Partnership Award, D.A. Bader, $25,000, 8/1/2008.
41. "Focused Research Program in High-Performance Computing," Coordinator: David A. Bader, and 50 other Engineering, Sciences, and Computing faculty, Georgia Institute of Technology, 8/1/08 - 7/30/09, $30,000 May 30, 2009. (Georgia Tech selects five FRP proposals for award each year.)
42. NSF IIP-0831110, "Collaborative Research: Establishing an I/UCRC Center for Multicore Productivity Research (CMPR)," Georgia Tech PI: David A. Bader; CoPIs: Rich Vuduc, Ada Gavrilovska, and Nathan Clark. University of Maryland, Baltimore County PI: Milton Halem; CoPI: Yelena Yesha. University of California, San Diego PI: Sheldon Brown. Industry/University Cooperative Research Centers (I/UCRC) Program, National Science Foundation, $30,000, ($10,000 Georgia Tech portion) 8/15/08 - 7/31/09.
43. "High-Performance Computing for Massive Graph Analysis," Georgia Tech PI: David A. Bader, Pacific Northwest National Laboratory, $180,000, (of DoD $4.0M award for the Center for Adaptive Supercomputing Software (CASS)), 8/1/08 - 7/7/09.
44. MIT Lincoln Laboratory, "Exascale Analytics for Massive Spatio-Temporal Graphs," $100,000, 11/1/2008-9/30/2009.
45. IBM Faculty Award, $40,000, 7/23/2009.
46. "Center for Adaptive Supercomputing Software for Multithreaded Architectures (CASS-MT): Analyzing Massive Social Networks," Georgia Tech PI: David A. Bader, Pacific Northwest National Laboratory, $1,269,533, 8/1/09 - 3/30/13.
47. NSF IIP-0934114, "Collaborative Research: Establishing a Center for Hybrid Multicore Productivity Research (CHMPR)," Georgia Tech PI: David A. Bader; CoPIs: Tom Conte, Rich Vuduc, Hyesoon Kim, and Nathan Clark. University of Maryland, Baltimore County PI: Milton Halem; CoPI: Yelena Yesha. University of California, San Diego PI: Sheldon Brown. Industry/University Cooperative Research Centers (I/UCRC) Program, National Science Foundation, $275,000, 8/15/09 - 7/31/14.
48. NSF OCI-0904461, "Collaborative Research: Understanding Whole-genome Evolution through Petascale Simulation," Georgia Tech Lead PI: David A. Bader; University of South Carolina PI: Jijun Tang; Pennsylvania State University PI: Stephen W. Schaeffer. Accelerating Discovery in Science and Engineering Through Petascale Simulations and Analysis (PetaApps) Program, National Science Foundation, $1,000,000, ($400,000 GA Tech portion), 9/1/09 - 8/31/13.
49. NIH RC2 HG005542, "Dynamically Scalable Accessible Analysis for Next Generation Sequence Data," PIs: James Taylor, Anton Nekrutenko (Emory University); David A. Bader. Research and Research Infrastructure "Grand Opportunities" (RC2), National Institutes of Health, $1,546,190, ($179,368 GA Tech portion), 9/25/09 - 7/31/11.
50. Air Force Research Laboratory / General Dynamics Information Technology, "Georgia Tech/AFRL Workshop on Computational Science and Engineering," $4,000, 8/1/2009-11/30/2009.
51. IBM X10 Innovation Award, "Dynamic Graph Data Structures in X10," $20,000, 12/14/2009.

52. DOE Sandia National Laboratories, Exploration of Shared Memory Graph Benchmarks, PI: D.A. Bader, $49,962, 2/1/2010 – 9/30/2010.
53. Northrop Grumman, "Membership, NSF Center for Hybrid Multicore Productivity Research (CHMPR)," PIs: David A. Bader and Tom Conte, $40,000, 5/20/10 - 5/19/11.
54. Intel, Parallel Algorithms in Non-Numeric Computing Award, "STING: Spatio-Temporal Interaction Networks and Graphs: An open-source dynamic graph package for Intel platforms," PIs: D.A. Bader and E.J. Riedy, $375,000, 6/2010 – 5/2013.
55. DARPA, "Challenge Applications and Scalable Metrics (CHASM) for Ubiquitous High Performance Computing," PIs: D.P. Campbell, M.A. Richards, D.A. Bader, M. Gokhale, J.S. Vetter, T. Sterling, Ubiquitous High Performance Computing (UHPC) Program, $7.5M (total), 6/25/2010 – 6/24/2014.
56. DARPA, "Echelon: Extreme-scale Compute Hierarchies with Efficient Locality-Optimized Nodes," Leadership Team: W.J. Dally, S. Keckler (NVIDIA), S. Scott (Cray), K. Yelick (Berkeley), M. Erez (UT-Austin), D.A. Bader (Georgia Tech); Ubiquitous High Performance Computing (UHPC) Program, $25M (total), (GT Portion: $878K), 6/25/2010 – 6/24/2014.
57. NSF OCI-1051537, "Accelerators for Data Intensive Applications; A Workshop to Engage the Science and Engineering Community," PI: Viktor Prasanna (University of Southern California), co-PI: David A. Bader; Software Institutes Program, National Science Foundation, $37,837, 8/15/10 - 8/14/11.
58. Oracle, "Membership, NSF Center for Hybrid Multicore Productivity Research (CHMPR)," PIs: David A. Bader and Tom Conte, $40,000, 3/2/11 - 3/1/12.
59. DARPA, "Benchmarking the IBM PERCS and Cray CASCADE architectures," High Productivity Computing Systems (HPCS) Program, PIs: D.A. Bader and J. Riedy, $287,994, 6/1/2011 – 3/31/2014.
60. DARPA, "Proactive Detection of Insider Threats with Graph Analysis at Multiple Scales," PIs: T. Senator (SAIC) and D.A. Bader (GTRI), Anomaly Detection at Multiple Scales (ADAMS) Program, $2,927,976 (GT portion), 5/1/2011 – 4/30/2013.
61. DARPA, "Ground Truthing Social Media Data," PIs: L. Weiss and D.A. Bader, $614,000, 8/15/2011 – 8/14/2012.
62. ExxonMobil Research & Engineering, "High Performance Computing Based Algorithms for Mixed Integer Programming," PIs: George Nemhauser, David A. Bader, and Shabbir Ahmed, $209,253, 1/1/2012 – 12/31/2013.
63. Intel Corp., "In support of the 10th DIMACS Implementation Challenge on Graph Partitioning and Graph Clustering," PI: D.A. Bader, $5,000, 1/2012.
64. Sandia National Laboratories, "In support of the 10th DIMACS Implementation Challenge on Graph Partitioning and Graph Clustering," PI: D.A. Bader, $4,000, 1/2012.
65. DARPA, "SOCINT: Social Signals for Identifying & Using Influential Subnetworks," PI: E. Gilbert, coPIs: D.A. Bader, I. Essa, C. Dovrolis, L. Weiss, and E. Briscoe, Social Media in Strategic Communication (SMISC) Program, $3,217,920, 2/1/2012 – 1/31/2015.

66. NSF OCI-1216504, "Software Infrastructure for Accelerating Grand Challenge Science with Future Computing Platforms," PI: D.A. Bader, co-PIs: R. Vuduc and E.J. Riedy; Software Institutes Program, National Science Foundation, $104,386, 10/1/12 - 9/30/13.
67. DARPA, "GRATEFUL: GRaph Analysis Tackling power EFficiency, Uncertainty, and Locality," PI: D.A. Bader, coPI: E.J. Riedy, Power Efficiency Revolution for Embedded Computing Technologies (PERFECT) Program, $2,929,819, 10/19/2012 – 10/18/2017.
68. NSF ACI-1265434, "EAGER: Collaborative Research: Using PDE Descriptions to Generate Code Precisely Tailored to Energy-Constrained Systems Including Large GPU Accelerated Clusters," Georgia Tech PI: David A. Bader; University of Illinois at Urbana-Champaign PI: Gengbin Zheng; Louisiana State University PI: Steven Brandt, and coPIs: Peter Diener, Frank Löffler, and David Koppelman. EArly-concept Grants for Exploratory Research (EAGER) Program, National Science Foundation, $294,914, ($100,000 GA Tech portion), 9/1/13 - 8/31/15.
69. NSF ACI-1339745, "SI2-SSI: Collaborative: The XScala Project: A Community Repository for Model-Driven Design and Tuning of Data-Intensive Applications for Extreme-Scale Accelerator-Based Systems," Georgia Tech PI: David A. Bader, and coPIs: Jason Riedy and Rich Vuduc; University of Southern California PI: Viktor Prasanna. Software Infrastructure for Sustained Innovation Program, National Science Foundation, $1,937,624, ($1,188,710 GA Tech portion), 10/1/13 - 9/30/15.
70. NSF ACI-1362300, "Collaborative Research: IEEE IPDPS Conference Student Participation Support," David A. Bader; National Science Foundation, $13,000, 1/1/14 - 6/30/15.
71. ExxonMobil Research, "High Performance Computing Based Algorithms for Mixed Integer Programming," PIs: George Nemhauser, Shabbir Ahmed, and David A. Bader, $217,530, 8/1/2014 – 7/31/2015.
72. "Massive-scale Streaming Network Analysis for Cyber-Analytics," Georgia Tech PI: David A. Bader, Jason Riedy, Pacific Northwest National Laboratory, $600,000, 8/22/14 - 3/31/16.
73. GPU Center of Excellence at Georgia Tech, coPI: D.A. Bader; supported by NVIDIA Corp., $400,000, 7/1/2015.
74. NSF ACI-1535058, "Collaborative Research: EMBRACE: Evolvable Methods for Benchmarking Realism through Application and Community Engagement," Georgia Tech PI: David A. Bader, and coPIs: Jason Riedy and Rich Vuduc; University of Tennessee PI: Jack Dongarra, and coPI: Piotr Luszczek. Strategic Technologies for Cyberinfrastructure Program National Science Foundation, $250,000, ($125,000 GA Tech portion), 9/1/15 - 8/31/17.
75. ExxonMobil Research, "Leveraging Machine Learning and High Performance Computing for Mixed Integer Programming," PIs: George Nemhauser, Shabbir Ahmed, David A. Bader, and Bistra Dilkina, $191,402, 1/1/2016 – 12/31/2016.
76. NSF OAC-1550461, "SI2-SSI: Collaborative Research: Einstein Toolkit Community Integration and Data Exploration," Georgia Tech PI: Pablo Laguna, and coPI: David A. Bader; University of Illinois at Urbana-Champaign PI: Gabrielle Allen, and coPIs: Matthew Turk,

Roland Haas, Louisiana State University PI: Steven Brandt, and coPI: Peter Diener, Rochester Institute of Technology PI: Manuela Campanelli, and coPIs: Joshua Faber, Yosef Zlochower. Software Infrastructure for Sustained Innovation Program, National Science Foundation, $1,799,155, ($462,164 GA Tech portion), 7/1/16 - 6/30/20.

77. "Massive-scale Streaming Network Analysis for Cyber-Analytics," PI: David A. Bader, Jason Riedy. Task Leads: Srinivas Aluru, Haesun Park, Oded Green. Pacific Northwest National Laboratory, $1,500,000, 7/26/16 - 5/31/17.
78. ExxonMobil Research, "Leveraging Machine Learning and High Performance Computing for Mixed Integer Programming," PIs: George Nemhauser, Shabbir Ahmed, David A. Bader, and Bistra Dilkina, $214,538, 1/1/2017 – 12/31/2017.
79. DARPA, "SHARP: Software Toolkit for Accelerating Graph Algorithms on Hive Processors," Georgia Tech PI (lead): D.A. Bader, coPI: O. Green. University of Southern California PI: Viktor Prasanna, coPI: Rajgopal Kannan. Hierarchical Identify Verify Exploit (HIVE) Program, $6,760,425, 4/24/2017 – 9/30/2021.
80. IARPA, "Evaluating Memory-centric Architectures for High Performance Data Analysis," PI: E.J. Riedy, coPIs: D.A. Bader, T. Conte, $662,525, 8/9/2017 – 8/8/2018.
81. DHS, "Center of Excellence Partner, Predictive Analysis of Massive Streaming Graphs," PI: D.A. Bader, $423,088, 10/1/2017 – 6/30/2018.
82. "High Performance Data Analytics (HPDA) Research Topics," PI: David A. Bader. Task Leads: Jason Riedy, Haesun Park. Pacific Northwest National Laboratory, $100,000, 1/18/2018 – 9/30/2018.
83. Ford Motor Company, "Empirical Study of Blockchain Technology to Establish Use Cases," PI: D.A. Bader, Ford Motor Company, University Research Program (URP), $50,000 (Year 1), 3/19/2018 – 12/31/2020.
84. DARPA, "DDARING: Dynamic Data-Aware Reconfiguration, INtegration and Generation," Georgia Tech PI (lead): V. Sarkar, coPI: D.A. Bader, T. Conte. Software Defined Hardware (SDH) Program, $4,500,000, 6/1/2018 – 11/30/2020.
85. "Scalable Graph Algorithms," PI: D.A. Bader; NVIDIA AI Lab award; $100,000, and NVIDIA DGX-Station, 3/6/2019.
86. "Scalable Graph Learning Algorithms," PI: D.A. Bader; Facebook Research, AI System Hardware/Software Co-Design research award; $50,000, 7/26/2019.
87. NSF CCF-2109988, "EAGER:High Performance Algorithms for Interactive Data Science at Scale," PI: David A. Bader, Computing and Communication Foundations, National Science Foundation, $2,123,142, 3/1/2021 - 6/30/2025.
88. "Streaming Graph Algorithms," NJIT PI: David A. Bader, BGU PI; Michael Elkin, Institute for Future Technologies, New Jersey Institute of Technology, $12,000, 3/1/2021 - 2/28/2022.
89. NSF CCF-2119816, "Collaborative Research:PPoSS:Planning: Streamware - A Scalable Framework for Accelerating Streaming Data Science," NJIT PI: David Bader, coPI: Senjuti Basu Roy; USC PI: Viktor Prasanna, coPIs: Sanmukh Rao Kuppannagari, Xuehai Qian;

Harvard PI: David Brooks, Principles and Practice of Scalable Systems (PPoSS), National Science Foundation, $249,553, 10/1/2021 - 9/30/2022.

90. NSF CCF-2119236, "Collaborative Research: PPoSS: Planning: Extreme-scale Sparse Data Analytics," NJIT PI: David Bader; Penn State PI: Kamesh Madduri, coPI: Mahmut T Kandemir; U Oregon PI: Jee W Choi, coPI: Boyana Norris; UC Santa Cruz PI: Scott Beamer, Principles and Practice of Scalable Systems (PPoSS), National Science Foundation, $249,999, 10/1/2021 - 9/30/2023.
91. "Combatting Software Supply Chain Attacks," Accenture, D.A. Bader, $50,000, 5/1/2022.
92. "NJBDA Administrative Director," PI: David Bader, New Jersey Economic Development Authority (NJEDA), $190,000, 3/1/2023 - 2/28/2026.
93. "Computationally Fast and Robust Approximation of Differential Geometry Operators on Discrete Surfaces," PI: Shahriar Afkhami, coPI: David A. Bader, New Jersey Institute of Technology, $10,000, 7/1/2023 - 6/30/2024.
94. DARPA, Underexplored Systems for Utility-Scale Quantum Computing (US2QC) Test and Evaluation Team, University of Maryland Applied Research Laboratory for Intelligence and Security (ARLIS), subcontract PI: David Bader, $50,000, 4/1/2023 - 9/30/2023.
95. "High Performance Computing for Scaling Graph Algorithms and Graph Neural Networks," NJIT PI: David A. Bader, BGU PI; Eran Treisetr, and Oded Margalit (NextSilicon), Institute for Future Technologies, New Jersey Institute of Technology, $20,000, 4/1/2024 - 3/31/2025.
96. "GRAPHITE: Graph-based Real-time Analysis and Processing for High-tech Intelligence and Tactical Engagements," NJIT PI: David A. Bader, Prime: ThatDot, Inc. Call for Innovative Defense-Related Dual-Purpose Technologies/Solutions with a Clear DAF Stakeholder Need, DoD / U.S. Air Force, STTR Program AF_X24.D_CSO, $109,990, ($40,000 NJIT portion), 5/15/2024 - 8/15/2024.
97. "FROG LEAPS: Field Ready Operational Gadget for Locating Electronic Adversaries and Persistent Snoopers," NJIT PI: David A. Bader, Prime: ThatDot, Inc. STTR Topic N24A-T019: Portable Analytics for Multi-Stage Cyber Attack Investigation, DoD / U.S. Navy, STTR Program STTR 24.A, $240,000, ($72,000 NJIT portion), 7/15/2024 - 1/15/2025.
98. "Artificial Intelligence Lecture Series," DataBank, D.A. Bader, $5,000, 5/31/2024.
99. NSF OAC-2402560, "Collaborative Research: OAC Core: Cyber-Infrastructure for Community Detection, Extraction, and Search in Large Networks," NJIT PI: David Bader; UIUC PIs: Tandy Warnow, George Chacko, Computer and Information Science and Engineering (CISE): Core Programs, National Science Foundation, $648,000, 7/15/2024 - 6/30/2027.
100. "High Performance Algorithms for Interactive Data Science at Scale," PI: David A. Bader, U.S. Government, $548,248, 11/1/2024 - 10/31/2025. (AWARD IN PROGRESS)
101. NJ NOFA-GEIR-FY2025, "FY25 Global Entrepreneurs in Residence Program: Notice of Funding Availability," PI: Kathy Naasz; co-Pis: Dr. Chang Yaramothu and David Bader, FY25 Global Entrepreneurs in Residence Program: Notice of Funding Availability, New Jersey Office of the Secretary of Higher Education, $200,000, 1//1/2025 - 6/30/2025.

J. Research Proposals and Grants (Contributor)

1. NSF DEB 00-80529, "Sevilleta LTER III: Long Term Ecological Research in a Biome Transition Zone ," National Science Foundation, Division of Environmental Biology, PIs: C.N. Dahm (current), J.R. Gosz (former), J.W. Brunt, T.K. Lowrey, W.T. Pockman, D. Pennington, R.R. Parmenter, $1,400,000, 10/15/2000 – 10/14/2002. (Senior Personnel)
2. NSF EIA 01-13095, "ITR/AP(DEB): Collaborative Research 'Computing Optimal Phylogenetic Trees under Genome Rearrangement Metrics'," PIs: R. Jansen (Texas-Austin) and B.M.E. Moret, National Science Foundation, Information Technology Research (ITR) Program, $450,000 (total); $161,903 (UNM portion), 10/1/2001 – 9/30/2004. (Senior Personnel)
3. NSF INT 01-29062, "Time-Delay Systems: Analysis, Computer Aided Design and Applications," PI: K. Gu (Southern Illinois), National Science Foundation, U.S.-France Cooperative Research International Program, $10,000 (total); $1,000 (UNM portion), 3/15/2002 – 2/28/2003.

K. Equipment Grants

1. NSF PACI/NCSA, "Linux Based Clusters for the Alliance: A Proposal to Establish a Linux Based Cluster (LBC) at the University of New Mexico," PIs: D.A. Bader, A.B. Maccabe, F. Gilfeather, approx. $200,000, March 1999.
2. IBM, "Development and Investigation of an Interoperable, Hybrid Technology System for Local/Remote Scientific and Visual Computing," PIs: S.R. Atlas, D.A. Bader, R.A. Ballance, T.P. Caudell, B.T. Smith, J. Sobolewski, IBM Shared University Research (SUR) Program, approx. $3M, 1/1/2000.
3. Sun Microsystems, "Sun StorEdge Array for Computational Science," PIs: D.A. Bader, K. Schwan, M. Wolf, Academic Equipment Grant (AEG) Program, approx. $42,800, 6/13/2005.
4. Xilinx Corp., "Reconfigurable Computing with FPGA Devices," (two Digilent Spartan 3 development boards), PI: D.A. Bader, Xilinx University Program (XUP), 2/28/2006.
5. IBM Corp., "Optimizing Scientific Libraries for IBM Cell," PI: D.A. Bader; Additional Researchers: Santosh Pande, Karsten Schwan, and Irfan Essa, Shared University Research (SUR) Program, approx. $55K, 7/1/2006.
6. Sun Microsystems, "Optimizing Computational Science Applications on Sun Multithreaded Processors," (two Sun T2000 blades with UltraSPARC "Niagara" T1 processors), PI: D.A. Bader, Academic Excellence Grant (AEG) Program, approx. $34K, 7/5/2006.
7. NVIDIA Research, (two Tesla C870 HPC compute boards), PI: D.A. Bader, Professor Partnership Program, approx. $2,500, 3/26/2008.
8. IBM Corp., "Optimizing R for IBM Cell Broadband Engine," PI: D.A. Bader; Additional Researcher: Richard Vuduc, Shared University Research (SUR) Program, $40K, 7/29/2008.

9. Sun Microsystems, "Multithreaded Algorithms," (Sun SPARC Enterprise T5240 Server, "Maramba"), PI: D.A. Bader, approx. $36,500, 3/30/2009.
10. Intel Corp., Single-Chip Cloud (SCC) Research, Lead PI: D.A. Bader ("Evaluating the SCC for Dynamic Streaming Graphs"); PI: R. Vuduc ("Models and autotuning for generalized n-body algorithms"); PI: A. Gavrilovska and co-PI K. Schwan, ("Scalable Systems Software for SCC Platforms"); 6/11/2010.
11. Oracle, "Multithreaded Algorithms," (two (2) Oracle Servers, each with two X4470's with four processes each and 1.5TB memory), PIs: D.A. Bader and E.J. Riedy, $118,000, 4/16/2012.
12. NVIDIA Research, (GeForce Titan), PI: D.A. Bader, and Adam McLaughlin, Academic Hardware award, 10/4/2013.
13. NSF CloudBank, PI: D.A. Bader, AWS Cloud Services, $15,000, 3/30/2023.

III. SERVICE

A. Professional Activities

A.1. Fellow in Professional Societies

- **Fellow**, Association for Computing Machinery (ACM). Citation: "for contributions to high-performance computing systems, graph analytics, and technical leadership in parallel computing."
- **Fellow**, Society for Industrial and Applied Mathematics (SIAM). Citation: "for contributions in high-performance algorithms and streaming analytics and for leadership in the field of computational science."
- **Fellow**, American Association for the Advancement of Science (AAAS). Citation: "for distinguished contributions to the field of computational science and engineering."
- **Fellow**, The Institute of Electrical and Electronics Engineers (IEEE). Citation: "for contributions to parallel algorithms for combinatorial problems and computational biology."

A.2. Board Service and Advisory Roles

- Board Member, The Computing Research Association (CRA), (2013-2014, 2024-2027).
- Member, External Expert Panel, BioData Catalyst Program, NIH National Heart, Lung, and Blood Institute (NIH/NHLBI), (2024-present).
- Committee Member, Council on Competitiveness, National Commission on Innovation and Competitiveness Frontiers, The Future of Technology Working Group, 2023.
- Committee Member, Cybersecurity Executive Working Group, New Jersey Economic Development Authority (NJEDA), 2023 – present.

- Committee Member, Information System Engineering (ISE) Program, Johns Hopkins University, 2023 – present.
- Chair, Committee of Visitors (COV) for the Office of Advanced Cyberinfrastructure (OAC), National Science Foundation, October 2021 – November 2022.
- Inaugural Chair, Seed Fund Steering Committee, Northeast Big Data Innovation Hub, May 1, 2020 – present.
- Advisory Council, Electrical and Computer Engineering (ECE) Department, Lehigh University, 2018 – present.
- Board of Governors, The Institute of Electrical and Electronics Engineers (IEEE), Computer Society, January 1, 2014 – December 31, 2016. (Elected by membership for 3-year term).
- NSF Advisory Committee on Cyberinfrastructure (ACCI), 2014-2017.
- Council on Competitiveness High Performance Computing Advisory Committee (HPCAC), 2014-present.

A.3. Memberships and Activities in Professional Societies

- Member, SIAM Activity Group on Supercomputing (SIAG/SC) Committee, (2022 - present).
- Chair, Editor-in-Chief Search Committee for IEEE Transactions on Services Computing (TSC), The Institute of Electrical and Electronics Engineers (IEEE), Computer Society, (2020 - 2021).
- Member, IEEE Focus Group on Application Benchmarking of Annealing-based Quantum Computers, The Institute of Electrical and Electronics Engineers (IEEE) (2019-present).
- Vice-Chair, IEEE-CS Charles Babbage Award Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2018, 2019).
- Member, Executive Committee, Technical Consortium on High Performance Computing (TCHPC), The Institute of Electrical and Electronics Engineers (IEEE), (2016 - present).
- Member, Editor-in-Chief Search Committee for IEEE Transactions on Parallel and Distributed Systems (TPDS), The Institute of Electrical and Electronics Engineers (IEEE), Computer Society, (2016 - 2017).
- Chair, Editor-in-Chief Search Committee for IEEE Transactions on Emerging Topics in Computing (TETC), The Institute of Electrical and Electronics Engineers (IEEE), Computer Society, (2016 - 2017).
- Member, IEEE Fellow Committee, The Institute of Electrical and Electronics Engineers (IEEE), (2016, 2017, 2018).
- Member, Election Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2014).
- Chair, ACM/IEEE CS George Michael HPC Fellowship Committee, (2014).

- Member, IEEE CS Fellows Evaluation Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, (2013, 2014, 2015, 2016, 2021, 2022).
- Chair, Transactions Operations Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2013).
- Chair, SIAM Activity Group on Supercomputing (SIAM/SC), January 1, 2012 – December 31, 2013. (Elected by membership for 2-year term).
- Chair, IEEE-CS Awards Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2012).
- Selection Committee, SPEC Distinguished Dissertation Award, (2012).
- Selection Committee, George C. Michael HPC Fellowship, IEEE Computer Society and ACM, (2011, 2012).
- Vice Chair, IEEE Fellows Selection Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, (2011, 2012).
- Member (Division V representative), TAB Awards and Recognition Committee, The Institute of Electrical and Electronics Engineers (IEEE), (2011, 2012, 2013).
- Selection Committee, Computing Innovations Fellows Project 2010, Computing Community Consortium (CCC) and Computing Research Association (CRA), (2010).
- Program Director, SIAM Activity Group on Supercomputing (SIAM/SC), January 1, 2010 – December 31, 2011. (Elected by membership for 2-year term).
- Member, Conference Activities Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, (2010).
- Chair, Integrity/Plagiarism Subcommittee, Publications Board, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, (2010-2011).
- Member, IEEE Fellows Selection Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, (2010).
- IEEE-CS Representative, IEEE Technical Activities Board (TAB) Awards and Recognition Committee, The Institute of Electrical and Electronics Engineers (IEEE), (2009 - 2011).
- Vice Chair for Service Awards, IEEE-CS Awards Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2008 - 2011).
- Member, Assessment and Planning Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2009 - 2011).
- Chair, IEEE Computer Society Technical Committee on Parallel Processing (TCPP), July 1, 2003 – June 30, 2007. (Elected by membership for consecutive 2-year terms).
- Member-at-large, Technical Activities Board (TAB) Executive Committee, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2005 - 2006).
- Member, Electronic Products and Services Board, The Institute of Electrical and Electronics Engineers (IEEE) Computer Society (2005 - 2007).

- Member, Association for Computing Machinery (ACM).
- Member, American Society for Engineering Education (ASEE).
- IEEE Computer Society: ParaScope, resource concept and editor.
- Organizing Chair, Grid Forum "Advanced Programming Models" Working Group.
- Coordinator, IEEE Computer Society Task Force on Cluster Computing, Algorithms and Applications Technical Area.
- Judge and Mentor, New Mexico High School Supercomputing Challenge (1998-99, 2000-01, 2001-02).
- Member, IEEE Portable Applications Standards Committee (PASC), interpretations committee for P1003.1c (Threads).
- Newsletter Editor, IEEE Computer Society, Technical Committee on Supercomputing Applications.
- IEEE Computer Society Technical Committee on Supercomputing Applications, Member.
- IEEE Computer Society Technical Committee on Parallel Processing, Member.
- IEEE Computer Society Technical Committee on Computer Architecture, Member.

A.4. Conference Committee Activities

- **Steering Committees**:
  - *The GraphBLAS Forum*, 2013–present.
  - *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS), 2002–2006, 2009–present.
  - *The IEEE International Conference on High Performance Computing* (HiPC), 2002–present.
  - *Workshop in Graphs, Architectures, Programming, and Learning* (GrAPL), *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS), 2020–present.
  - *SIAM Meeting on Algorithm Engineering and Experiments* (ALENEX), 2012–present.
  - *The International Supercomputing Conference* (ISC), 2012–present.
  - *The International Heterogeneity in Computing Workshop* (HCW), 2018–present.
  - *The International Symposium on Experimental Algorithms* (SEA), 2008–2021; *The International Workshop on Efficient and Experimental Algorithms* (WEA), 2005–2008.
  - *The Symposium on Application Accelerators in High Performance Computing* (SAAHPC), 2008–2012.
  - *The International Forum on Next-Generation Multicore/Manycore Technologies* (IFMT), 2008.
- **Organizing Committees**:

- Co-Organizer, *SANDY Workshop*, 53rd International Parallel Processing Symposium (ICPP), Gotland, Sweden, August 12-15, 2024.
- Co-Organizer, *Minisymposium on Large Scale Graph Analytics, 20th SIAM Conference on Parallel Processing for Scientific Computing* (PP24), Baltimore, MD, March 5-8, 2024.
- Co-Organizer, *Minisymposium on Recent Advances in Scientific Computing and Data Science 2023 SIAM New York - New Jersey - Pennsylvania Section Conference* (NNP23), Newark, NJ, October 20-22, 2023.
- Co-Organizer, *SANDY Workshop*, 52nd International Parallel Processing Symposium (ICPP), Salt Lake City, UT, August 7-10, 2023.
- Organizer, *NJBDA Smart Ports Workshop*, sponsored by the US Economic Development Administration, Newark, NJ, April 4, 2023.
- Co-Organizer, *Minisymposium on Scaling Data Science, AI, and, ML on Massively Multi-Threaded Systems 2023 SIAM Conference on Computational Science and Engineering* (CSE23), Amsterdam, The Netherlands, February 26 - March 3, 2023.
- Co-Organizer, *Minisymposium on Scalable Data Analytics on the GPU, 19th SIAM Conference on Parallel Processing for Scientific Computing* (PP22), Virtual, February 24-25, 2022.
- General Co-Chair, *The 35th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2021), Portland, OR, May 17-21, 2021.
- Co-Organizer, *Graph Algorithms Building Blocks (GABB 2018)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2018), Vancouver, British Columbia, Canada, May 21, 2018.
- Co-Chair, *Seventeenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2018), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2018), Vancouver, British Columbia, Canada, May 21, 2018.
- Co-Chair, *Minisymposium on Scalable and Dynamic Graph Algorithms, 17th SIAM Conference on Parallel Processing for Scientific Computing* (PP18), Tokyo, Japan, March 7-10, 2018.
- Co-Organizer, *Deep Models and Artificial Intelligence for Military Applications: Potentials, Theories, Practices, Tools and Risks*, held in conjunction with *AAAI 2017 Fall Symposium Series*, Arlington, VA, November 9-11, 2017.
- Co-Organizer, *Evolvable Methods for Benchmarking Realism and Community Engagement (EMBRACE) Workshop*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2017), Orlando, FL, June 2, 2017.
- Co-Organizer, *Graph Algorithms Building Blocks (GABB 2017)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2017), Orlando, FL, May 29, 2017.
- Co-Chair, *Sixteenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2017), held in conjunction with *The IEEE International*

Parallel and Distributed Processing Symposium (IPDPS 2017), Orlando, FL, May 29, 2017.

- Co-Organizer, *Graph Algorithms Building Blocks (GABB 2016)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2016), Chicago, IL, May 23, 2016.
- Co-Chair, *Fifteenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2016), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2016), Chicago, IL, May 22-23, 2016.
- Co-Chair, *Minisymposium on Scalable Network Analysis: Tools, Algorithms, Applications, 16th SIAM Conference on Parallel Processing for Scientific Computing* (PP16), Paris, France, April 12-15, 2016.
- Panels Committee Member, The 27th IEEE and ACM Supercomputing Conference (SC15), Austin, TX, November 15-20, 2015.
- Co-Organizer, *Big Graph Visual Analytics Challenges and Opportunities Workshop (EGAS 2015)*, held in conjunction with *The IEEE VIS Conference* (VIS 2015), Chicago, IL, October 26, 2015.
- Co-Organizer, *Graph Algorithms Building Blocks (GABB 2015)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2015), Hyderabad, India, May 25, 2015.
- Co-Chair, *Fourteenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2015), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2015), Hyderabad, India, May 25, 2015.
- Organizing Committee Member, *CRA Conference at Snowbird*, Snowbird, UT, July 20-22, 2014.
- Co-Organizer, *Graph Algorithms Building Blocks (GABB 2014)*, held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2014), Phoenix, AZ, May 19, 2014.
- Co-Chair, *Thirteenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2014), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2014), Phoenix, AZ, May 19, 2014.
- Program Chair, *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2014), Phoenix, AZ, May 19-23, 2014.
- Co-Chair, Harnessing Accelerator Technology for Next-Gen Sequencing Bioinformatics Birds-of-a-Feather, The 25th IEEE and ACM Supercomputing Conference (SC13), Denver, CO, November 21, 2013.
- Co-Chair, *5th Workshop on Parallel Computational Biology* (PBC 2013), held in conjunction with *The 10th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2013), Warsaw, Poland, September 8-11, 2013.

- Organizing Committee Member, *1st SIAM Workshop on Network Science* (NS13), San Diego, CA, July 7-8, 2013.
- Chair, "Better Understanding Brains, Genomes & Life Using HPC Systems," 28th International Supercomputing Conference (ISC), Leipzig, Germany, June 16-20, 2013.
- Co-Chair, *Twelfth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2013), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2013), Boston, MA, May 20, 2013.
- Co-Chair, *Minisymposium on Frontiers in Large-Scale Graph Analysis, 2013 SIAM Conference on Computational Science and Engineering* (CSE13), Boston, MA, February 25 - March 1, 2013.
- Stream Chair, *2013 INFORMS Computing Society Conference*, Santa Fe, NM, January 6-8, 2013.
- Organizing Committee Member, *Accelerated HPC Symposium* (AHPCS), San Francisco, CA, May 16-17, 2012.
- Program Vice Chair, *The 12th IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2012), Ottawa, Canada, May 2012.
- Co-Chair, *Eleventh IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2012), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2012), Shanghai, China, May 20, 2012.
- Chair, *15th SIAM Conference on Parallel Processing for Scientific Computing* (PP12), Savannah, GA, February 15-17, 2012.
- Co-Chair, *The 10th DIMACS Implementation Challenge – Graph Partitioning and Graph Clustering*, Atlanta, GA, February 13-14, 2012.
- Program Co-Chair, *SIAM Workshop on Algorithm Engineering and Experiments* (ALENEX12), Kyoto, Japan, January 16, 2012.
- Committee Member, *The IEEE and ACM Supercomputing Conference 2011* (SC2011), Doctoral Showcase, Seattle, WA, November 12-18, 2011.
- Co-Chair, *4th Workshop on Parallel Computational Biology* (PBC 2011), held in conjunction with *The 9th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2011), Torun, Poland, September 11-14, 2011.
- Chair, "Computational Biology," 26th International Supercomputing Conference (ISC), Hamburg, Germany, June 19-23, 2011.
- Organizing Committee Member, *The 5th SIAM Workshop on Combinatorial Scientific Computing*, (CSC 2011), Darmstadt, Germany, May 19-21, 2011.
- 25th Year Planning Chair, *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2011), Anchorage, AK, May 16-20, 2011.
- Co-Chair, *Tenth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2011), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2011), Anchorage, AK, May 16, 2011.
- Awards Co-Chair, *The 2nd Joint WOSP/SIPEW ACM International Conference on Performance Engineering*, (ICPE 2011), Karlsruhe, Germany, March 14-16, 2011.

- Co-Chair, *Minisymposium on Combinatorial Methods in Applications of CSE, 2011 SIAM Conference on Computational Science and Engineering* (CSE11), Reno, NV, February 28 - March 4, 2011.
- Co-Chair, *NSF Workshop on Accelerators for Data-Intensive Applications*, National Science Foundation, Arlington, VA, October 13-14, 2010.
- Scientific Organizing Committee Member, *Grand Challenges in Data-Intensive Discovery*, San Diego Supercomputer Center, UC San Diego, October 26-28, 2010.
- Program Vice Chair, *The 39th International Conference on Parallel Processing* (ICPP 2010), San Diego, CA, September 13-16, 2010.
- Chair, *Minisymposium on Analyzing Massive Real-World Graphs, 2010 SIAM Annual Meeting* (AN10), Pittsburgh, PA, July 12-16, 2010.
- Co-Chair, "High Performance Computational Life Sciences," 25th International Supercomputing Conference (ISC), Hamburg, Germany, May 30 - June 3, 2010.
- Program Vice Chair, *The 10th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing* (CCGrid2010), Melbourne, Australia, May 17-20, 2010.
- General Chair, *The 24th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2010), Atlanta, GA, April 19-23, 2010.
- Co-Chair, *Ninth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2010), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2010), Atlanta, GA, April 19, 2010.
- General Chair, *19th IEEE International Heterogeneity in Computing Workshop* (HCW 2010), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2010), Atlanta, GA, April 19, 2010.
- Program Vice Chair, *15th IEEE International Conference on Parallel and Distributed Systems* (ICPADS), Shenzhen, China, December 9-11, 2009.
- Program Vice Chair, *21st International Symposium on Computer Architecture and High Performance Computing* (SBAC-PAD), Sao Paulo, Brazil, October 28-31, 2009.
- Co-Chair, *3rd Workshop on Parallel Bio-Computing* (PBC 2009), held in conjunction with *The 8th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2009), Wrocław (Breslau), Poland, September 13-16, 2009.
- Co-Chair, *Georgia Tech/AFRL Computational Science Workshop on Computational Science Challenges Using Emerging & Massively Parallel Computer Architectures*, Atlanta, GA, August 17, 2009.
- Co-Chair, *Minisymposium on High-Performance Computing on Massive Real-World Graphs, 2009 SIAM Annual Meeting* (AN09), Denver, CO, July 6-10, 2009.
- Co-Chair, *Eighth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2009), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2009), Rome, Italy, May 25, 2009.
- Program Chair, *18th IEEE International Heterogeneity in Computing Workshop* (HCW 2009), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2009), Rome, Italy, May 25, 2009.

- General Vice Chair, *The 23rd IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2009), Rome, Italy, May 25-29, 2009.
- Program Vice Chair, *The 15th IEEE International Conference on High Performance Computing* (HiPC 2008), Bangalore, India, December 2008.
- Co-Chair, *The SC08 Workshop on Multicore Architectures and Biomedical Informatics*, Austin, TX, November 17, 2008.
- Track Chair, *The 1st International Conference on Contemporary Computing*, New Delhi, India, August 7-9, 2008.
- Co-Chair, *The 2nd Annual Georgia Tech – Sony, Toshiba, IBM (STI) Workshop on Software and Algorithms for the Cell Broadband Engine Processor*, Atlanta, GA, July 10-11, 2008.
- Co-Chair, *Minisymposium on Cell BE Technologies: Algorithms, Programming Models and Environments, Performance Analysis and Applications*, held in conjunction with the *9th International Workshop on State-of-the-Art in Scientific and Parallel Computing* (PARA 2008), Trondheim, Norway, May 13-16, 2008.
- Co-Chair, *Seventh IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2008), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2008), Miami, FL, April 14, 2008.
- Co-Chair, *Minisymposium on High Performance Computing on the Cell Processor*, held in conjunction with the *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 12-14, 2008.
- Co-Chair, *Minisymposium on HPC on Large Graphs*, held in conjunction with the *13th SIAM Conference on Parallel Processing for Scientific Computing* (PP08), Atlanta, GA, March 12-14, 2008.
- Co-Chair, *Workshop on Progress Toward Petascale Applications in Bioinformatics and Computational Biology*, held in conjunction with *The IEEE 7th International Symposium on Bioinformatics & Bioengineering* (BIBE 2007), Boston, MA, October 14-17, 2007.
- Co-Chair, *2nd Workshop on Parallel Bio-Computing* (PBC 2007), held in conjunction with *The 7th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2007), Gdansk, Poland, September 9-12, 2007.
- Co-Chair, *The Georgia Tech – Sony, Toshiba, IBM (STI) Workshop on Software and Algorithms for the Cell Broadband Engine Processor*, Atlanta, GA, June 18-19, 2007.
- Co-Chair, *Sixth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2007), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2007), Long Beach, CA, March 26, 2007.
- Program Chair, *The SPEC 2007 Benchmark Workshop*, Austin, TX, January 21, 2007.
- Co-Chair, *NSF Workshop on Petascale Computing in the Biological Sciences*, National Science Foundation, Arlington, VA, August 29-30, 2006.

- Co-Chair, *Fifth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2006), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2006), Rhodes Island, Greece, April 25, 2006.
- Program Vice Chair, *The 20th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2006), Rhodes Island, Greece, April 25 - 29, 2006.
- Program Vice Chair, *The 35th International Conference on Parallel Processing* (ICPP 2006), Columbus, OH, August 15-17, 2006.
- Program Chair, *The 12th IEEE International Conference on High Performance Computing* (HiPC 2005), Goa, India, December 18-21, 2005.
- Co-Chair, *Workshop on Enabling Petascale Science and Engineering Applications*, Atlanta, GA, December 9, 2005.
- Vice General Co-Chair, *The 6th International Workshop on Advanced Parallel Processing Technologies* (APPT 2005), Hong Kong, China, October 27-28, 2005.
- Co-Chair, *1st Workshop on Parallel Bio-Computing* (PBC 2005), held in conjunction with *The 6th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2005), Poznan, Poland, September 11-14, 2005.
- Co-Chair, *Fourth IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2005), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2005), Denver, CO, April 4, 2005.
- Vice General Chair, *The 11th IEEE International Conference on High Performance Computing* (HiPC 2004), Bangalore, India, December 19-22, 2004.
- Program Co-Chair, *The 17th ISCA International Conference on Parallel and Distributed Computing Systems* (PDCS 2004), San Francisco, CA, September 15-17, 2004.
- Program Vice Chair, *High Performance Bioinformatics, Euro-Par 2004*, Pisa, Italy, August 31 - September 3, 2004.
- General Co-Chair, *The 18th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2004), Santa Fe, NM, April 26 - 30, 2004. *Highest registered attendance (approx. 625) in 18 year conference history.*
- Co-Chair, *Third IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2004), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2004), Santa Fe, NM, April 26, 2004.
- Vice General Chair, *The 10th International Conference on High Performance Computing* (HiPC 2003), Hyderabad, India, December 18-21, 2003.
- Co-Chair, *Second IEEE International Workshop on High Performance Computational Biology* (HiCOMB 2003) held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2003), Nice, France, April 22, 2003.
- Publicity Co-Chair, *The 17th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2003), Nice, France, April 22-26, 2003.
- Vice General Chair, *The 9th International Conference on High Performance Computing* (HiPC 2002), Bangalore, India, December 18-21, 2002.

- Publicity Chair, *IEEE International Conference on Cluster Computing* (CLUSTER 2002), Chicago, IL, September 23-26, 2002.
- Publicity Chair, *IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2002), Berlin, Germany, May 22-24, 2002.
- Co-Chair, *First IEEE International Workshop on High Performance Computational Biology (HiCOMB 2002)* held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2002), Fort Lauderdale, FL, April 15, 2002.
- Publicity Chair, *The 16th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2002), Fort Lauderdale, FL, April 15-19, 2002.
- Program Committee co-Vice-Chair, *IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2001), Brisbane, Australia, May 2001.
- Publicity Chair, *The 15th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2001), San Francisco, CA, April 22-27, 2001.
- Publicity Chair, *The 14th IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2000), Cancún, Mexico, May 2000.
- Publicity Chair, *The IEEE Computer Society International Workshop on Cluster Computing* (IWCC99), Melbourne, Australia, December 1999.
- Publicity Chair, *The 13th International Parallel Processing Symposium and 10th Symposium on Parallel and Distributed Processing* (IPPS/SPDP '99), San Juan, Puerto Rico, April 1999.

• **Program Committee Memberships**:

- *2nd SIAM Conference on Applied and Computational Discrete Algorithms* (ACDA), Seattle, WA, May 31 - June 2, 2023.
- *The 26th IEEE High Performance Extreme Computing Conference* (HPEC), virtual, September 19-23, 2022.
- *Big Data Analytics Workshop (BigDAW)*, co-located with the *ACM International Conference on Computing Frontiers 2022*, Turin, Italy, May 17-19, 2022.
- *14th International Conference on Parallel Processing and Applied Mathematics (PPAM)*, Gdansk, Poland, September 11-14, 2022.
- *The 31st IEEE Heterogeneity in Computing Workshop* (HCW 2022), Lyon, France, May 30, 2022.
- *2nd ACM International Conference on AI in Finance* (ICAIF), Virtual, November 3-5, 2021.
- *The 27th ACM Symposium on Principles and Practice of Parallel Programming* (PPoPP), Seoul, South Korea, February 12-16, 2022.
- *2021 Data Science Leadership Summit*, Savannah, GA, November 7-12, 2021.
- *The 25th IEEE High Performance Extreme Computing Conference* (HPEC), virtual, September 21-23, 2021.

- *1st SIAM Conference on Applied and Computational Discrete Algorithms* (ACDA), Spokane, WA, July 19-21, 2021.
- *1st ACM International Conference on AI in Finance* (ICAIF), New York, NY, October 15-16, 2020.
- *The 24th IEEE High Performance Extreme Computing Conference* (HPEC), virtual, September 21-25, 2020.
- *The 23rd IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 24-26, 2019.
- *AAAI Fall Symposium, Adversarial-Aware Learning Techniques and Trends in Cybersecurity* (ALEC), Arlington, VA, October 18-19, 2018.
- *The 22nd IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 25-27, 2018.
- *The 21st IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 12-14, 2017.
- *12th International Conference on Parallel Processing and Applied Mathematics (PPAM)*, Lublin, Poland, September 10-13, 2017.
- *The 20th IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 13-15, 2016.
- *The 19th IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 15-17, 2015.
- *11th International Conference on Parallel Processing and Applied Mathematics (PPAM)*, Krakow, Poland, September 6-9, 2015.
- *The 18th IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 9-11, 2014.
- *The 43st International Conference on Parallel Processing* (ICPP 2014), Minneapolis, MN, September 9-12, 2014.
- *20th IEEE International Conference on High Performance Computing* (HiPC), Bangalore, India, December 18-21, 2013.
- *The 6th IEEE/ACM International Conference on Utility and Cloud Computing* (UCC 2013), Dresden, Germany, December 2-5, 2013.
- *The 15th IEEE International Conference on High Performance Computing and Communications* (HPCC 2013), Zhangjiajie, China, November 13-15, 2013.
- *The 3rd IEEE Symposium on Large-Scale Data Analysis and Visualization* (LDAV 2013), Atlanta, GA, October 13-18, 2013.
- *The IEEE International Conference on Big Data* (Big Data 2013), Silicon Valley, CA, October 6-9, 2013.
- *The 17th IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 10-12, 2013.
- *The 10th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2013), Warsaw, Poland, September 8-11, 2013.

- *The 6th International Workshop on Multi-Core Computing Systems* (MuCoCoS), Edinburgh, Scotland, UK, September 7, 2013.
- *21st Annual European Symposium on Algorithms* (ESA 2013), Sophia Antipolis, France, September 2-4, 2013.
- *Unconventional High Performance Computing* (UCHPC 2013), Aachen, Germany, August 26-27, 2013.
- *The Algorithms and Data Structures Symposium* (WADS 2013), London, Ontario, Canada, August 12-14, 2012.
- *3rd IEEE International Conference on Computational Advances in Bio and Medical Sciences*, (ICCABS), New Orleans, LA, June 12-14, 2013.
- *Architecture, Languages, Compilation and Hardware support for Emerging ManYcore systems* (ALCHEMY), held in conjunction with *The 13th International Conference on Computational Science* (ICCS 2013), Barcelona, Spain, June 5-7, 2013.
- *The 13th International Conference on Computational Science* (ICCS 2013), Barcelona, Spain, June 5-7, 2013.
- *7th Workshop on Multithreaded Architectures and Applications* (MTAAP 2013), Boston, MA, May 24, 2013.
- *The 1st International Symposium on Big Data and Data Analytics in Collaboration* (BDDAC 2013), San Diego ,CA, May 20-24, 2013.
- *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2013), Boston, MA, May 20-24, 2013.
- *The 2013 Non-Volatile Memories Workshop* (NVMW 2013), San Diego, CA, March 3-5, 2013.
- *2nd International Workshop on Extreme Scale Parallel Architectures and Systems* (ESPAS 2013), held in conjunction with *The 8th International Conference on High-Performance and Embedded Architectures and Compilers* (HiPEAC 2013), Berlin, Germany, January 21-23, 2013.
- *19th IEEE International Conference on High Performance Computing* (HiPC), Pune, India, December 19-22, 2012.
- *The 5th International Workshop on Multi-Core Computing Systems* (MuCoCoS), Salt Lake City, UT, November 16, 2012.
- *2nd Workshop on Irregular Applications: Architectures & Algorithms* (IA^3), held in conjunction with *SC12*, Salt Lake City, UT, November 11, 2012.
- *The 5th IEEE/ACM International Conference on Utility and Cloud Computing* (UCC 2012), Chicago, IL, November 5-8, 2012.
- *24th International Symposium on Computer Architecture and High Performance Computing* (SBAC-PAD), New York, NY, October 24-26, 2012.
- *The 8th IEEE International Conference on eScience* (eScience 2012), Chicago, IL, October 8-12, 2012.
- *IEEE Cluster 2012*, Beijing, China, September 24-28, 2012.

- *The 13th IEEE/ACM International Conference on Grid Computing* (Grid 2012), Beijing, China, September 20-23, 2012.
- *The IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 20-22, 2012.
- *The 41st International Conference on Parallel Processing* (ICPP 2012), Pittsburgh, PA, September 10-13, 2012.
- *Unconventional High Performance Computing* (UCHPC 2012), Rhodes Island, Greece, August 27-28, 2012.
- *The 5th International Conference on Contemporary Computing* (IC3 2012), NOIDA, Delhi, India, August 6-8, 2012.
- *International Conference on Computer Communication Networks* (ICCCN 2012), Munich, Germany, July 30 - August 2, 2012.
- *2012 Symposium on Application Accelerators in HPC* (SAAHPC 2012), Chicago, IL, July 10-12, 2012.
- *The 3rd International Workshop on Frontier of GPU Computing* (FGC 2012), held in conjunction with *15th IEEE International Conference on Computational Science and Engineering*, (CSE 2012), Liverpool, UK, June 25-27, 2012.
- *The 14th IEEE International Conference on High Performance Computing and Communications* (HPCC 2012), Liverpool, England, UK, June 25-27, 2012.
- *The 12th International Conference on Computational Science* (ICCS 2012), Omaha, Nebraska, June 4-6, 2012.
- *6th Workshop on Multithreaded Architectures and Applications* (MTAAP 2012), Shanghai, China, May 25, 2012.
- *2nd International Workshop on Accelerators and Heterogeneous Exascale Systems* (AsHES 2012), held in conjunction with *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2012), Shanghai, China, May 2012.
- *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2012), Shanghai, China, May 20-25, 2012.
- *1st Workshop on GRAph Inspection and Traversal Engineering* (GRAPHITE 2012), held in conjunction with *European Joint Conferences On Theory & Practice Of Software* (ETAPS 2012), Saarbrücken, Germany, March 31 - April 1, 2012.
- *4th International Conference on Bioinformatics and Computational Biology* (BICoB-2012), Las Vegas, NV, March 12-14, 2012.
- *2nd IEEE International Conference on Computational Advances in Bio and Medical Sciences*, (ICCABS), Las Vegas, Nevada, February 23-25, 2012.
- *The 2012 Non-Volatile Memories Workshop* (NVMW 2012), San Diego, CA, March 4-6, 2012.
- *1st International Workshop on Extreme Scale Parallel Architectures and Systems* (ESPAS 2012), held in conjunction with *The 7th International Conference on High-Performance and Embedded Architectures and Compilers* (HiPEAC 2012), Paris, France, January 23-25, 2012.

- *2nd Workshop on Hybrid Multicore Computing* (WHMC 2011), held in conjunction with *18th International Conference on High Performance Computing* (HiPC), Bangalore, India, December 18, 2011.
- *Workshop on Irregular Applications: Architectures & Algorithms* (IA^3), held in conjunction with *SC11*, Seattle, WA, November 13, 2011.
- *2nd ACM SIGHIT International Health Informatics Symposium* (IHI 2011), Miami, FL, November 9-11, 2011.
- *23rd International Symposium on Computer Architecture and High Performance Computing* (SBAC-PAD), Vitória, Brazil, October 26-29, 2011.
- *The IEEE Symposium on Large-Scale Data Analysis and Visualization* (LDAV 2011), Providence, RI, October 24, 2011.
- *3rd Workshop on Programming Models for Emerging Architectures* (PMEA 2011), held in conjunction with *20th International Conference on Parallel Architectures and Compilation Techniques* (PACT), Galveston Island, Texas, October 10-14, 2011.
- *The IEEE International Conference on Cluster Computing* (Cluster 2011), Austin, TX, September 26-30, 2011.
- *The 12th IEEE/ACM International Conference on Grid Computing* (Grid 2011), Lyon, France, September 22-23, 2011.
- *The 15th Annual Workshop on High Performance Embedded Computing* (HPEC 2011), Lexington, MA, September 21-22, 2011.
- *The 40th International Conference on Parallel Processing* (ICPP 2011), Taipei, Taiwan, September 13-16, 2011.
- *The 9th International Conference on Parallel Processing and Applied Mathematics* (PPAM 2011), Torun, Poland, September 11-14, 2011.
- *The 13th IEEE International Conference on High Performance Computing and Communications* (HPCC 2011), Banff, Alberta, Canada, September 2-4, 2011.
- *2nd Workshop on High Performance Bioinformatics and Biomedicine* (HiBB 2011), held in conjunction with *17th International European Conference on Parallel and Distributed Computing* (Euro-Par), Bordeaux, France, August 30, 2011.
- *The 5th Euro-Par Workshop on Highly Parallel Processing on a Chip* (HPPC 2011), held in conjunction with *17th International European Conference on Parallel and Distributed Computing* (Euro-Par), Bordeaux, France, August 30, 2011.
- *Unconventional High Performance Computing* (UCHPC 2011), Bordeaux, France, August 29 - September 2, 2011.
- *The 2nd International Workshop on Frontier of GPU Computing* (FGC 2011), held in conjunction with *14th IEEE International Conference on Computational Science and Engineering*, (CSE 2011), Dalian, China, 24-26 August, 2011.
- *The Algorithms and Data Structures Symposium* (WADS 2011), Brooklyn, NY, August 15-17, 2011.
- *2011 Symposium on Application Accelerators in HPC* (SAAHPC 2011), Knoxville, TN, July 19-21, 2011.

- *19th Annual International Conference on Intelligent Systems for Molecular Biology* (ISMB) & *10th European Conference on Computational Biology* (ECCB), Vienna, Austria, July 17-19, 2011.
- *The 9th ACS/IEEE International Conference on Computer Systems and Applications* (AICCSA 2011), Sharm El-Sheikh, Egypt, June 27-30, 2011.
- *2nd Workshop on Applications for Multi and Many Core Processors* (A4MMC 2011), held in conjunction with *The 38th International Symposium on Computer Architecture* (ISCA 2011), San Jose, CA, June 4, 2011.
- *The 1st International Workshop on Characterizing Applications for Heterogeneous Exascale Systems* (CACHES), held in conjunction with *25th ACM International Conference on Supercomputing* (ICS-2011), Tuscon, Arizona, June 4, 2011.
- *The 11th International Conference on Computational Science* (ICCS 2011), Tsukuba, Japan, June 1-3, 2011.
- *The 11th IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2011), Newport Beach, CA, May 23-26, 2011.
- *5th Workshop on Multithreaded Architectures and Applications* (MTAAP 2011), Anchorage, AK, May 20, 2011.
- *The 2nd ACM/SPEC International Conference on Performance Engineering*, (ICPE 2011), Karlsruhe, Germany, March 14-16, 2011.
- *New Frontiers in High-performance and Hardware-aware Computing*, (HipHaC'11), held in conjunction with *17th IEEE International Symposium on High-Performance Computer Architecture*, (HPCA-17), San Antonio, TX, February 13, 2011.
- *1st IEEE International Conference on Computational Advances in Bio and Medical Sciences*, (ICCABS), Orlando, Florida, February 3-5, 2011.
- *5th International Conference on Ubiquitous Information Technologies & Applications* (CUTE 2010), Sanya, China, December 16-18, 2010.
- *16th IEEE International Conference on Parallel and Distributed Systems* (ICPADS), Shanghai, China, December 8-10, 2010.
- *2nd International Conference on Cloud Computing* (CloudCom 2010), Indianapolis, Indiana, November 30 - December 3, 2010.
- *1st ACM International Health Informatics Symposium* (IHI 2010), Washington, DC, November 11-12, 2010.
- *22nd International Symposium on Computer Architecture and High Performance Computing* (SBAC-PAD), Petropolis, Brazil, October 27-30, 2010.
- *The 11th IEEE/ACM International Conference on Grid Computing* (Grid2010), Brussels, Belgium, October 24-29, 2010.
- *Los Alamos Computer Science Symposium*, (LACSS), Santa Fe, NM, October 11-14, 2010.
- *SPEC Benchmarking Workshop* (SPEC 2010), Paderborn, Germany, October 8, 2010.

- *The 14th Annual Workshop on High Performance Embedded Computing* (HPEC 2010), Lexington, MA, September 15-16, 2010.
- *1st International Workshop on Accelerating Data Management Systems Using Modern Processor and Storage Architectures* (ADMS 2010), held in conjunction with *36th International Conference on Very Large Data Bases* (VLDB 2010), Singapore, September 13, 2010.
- *2nd Workshop on Programming Models for Emerging Architectures* (PMEA 2010), held in conjunction with *19th International Conference on Parallel Architectures and Compilation Techniques* (PACT), Vienna, Austria, September 11-15, 2010.
- *1st Workshop on High Performance Bioinformatics and Biomedicine* (HiBB 2010), held in conjunction with *16th International European Conference on Parallel and Distributed Computing* (Euro-Par), Ischia, Naples, Italy, August 31 - September 3, 2010.
- *2nd International Forum on Next-Generation Multicore/Manycore Technologies* (IFMT 2010), Saint-Malo, France, June 19-23, 2010.
- *1st Workshop on Applications for Multi and Many Core Processors* (A4MMC 2010), held in conjunction with *The 37th International Symposium on Computer Architecture* (ISCA 2010), Saint Malo, France, June 19, 2010.
- *The 10th International Conference on Computational Science* (ICCS 2010), Amsterdam, The Netherlands, May 31 - June 2, 2010.
- *9th International Symposium on Experimental Algorithms* (SEA 2010), Napoli, Italy, May 20-22, 2010.
- *Frontiers of GPU, Multi and Many-Core Systems Workshop*, colocated with the *10th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing* (CCGrid 2010), Melbourne, Australia, May 17-20, 2010.
- *8th ACS/IEEE International Conference on Computer Systems and Applications* (AICCSA), Hammamet, Tunisia, May 16-19, 2010.
- *International Workshop on Multicore Software Engineering* (IWMSE 2010), colocated with the *International Conference on Software Engineering* (ICSE 2010) May 2010.
- *4th Workshop on Multithreaded Architectures and Applications* (MTAAP 2010), Atlanta, GA, April 19, 2010.
- *Facing the Multicore Challenge*, Heidelberg Academy of Sciences, Heidelberg, Germany, March 17-19, 2010.
- *3rd Workshop on General-Purpose Computation on on Graphics Processing Units* (GPGPU-3), Pittsburgh, PA, March 14, 2010.
- *The 1st Joint WOSP/SIPEW ACM International Conference on Performance Engineering*, (ICPE 2010), San Jose, CA, January 28-30, 2010.
- *1st International Conference on Cloud Computing* (CloudCom 2009), Beijing, China, December 1-4, 2009.
- *The IEEE and ACM Supercomputing Conference 2009* (SC2009), Posters, Portland, OR, November 14-20, 2009.

- *17th Annual European Symposium on Algorithms* (ESA 2009), Copenhagen, Denmark, September 7-9, 2009.
- *3rd Workshop on Multithreaded Architectures and Applications* (MTAAP 2009), Rome, Italy, May 29, 2009.
- *The 38th International Conference on Parallel Processing* (ICPP 2009), Vienna, Austria, September 22-25, 2009.
- *The 13th Annual Workshop on High Performance Embedded Computing* (HPEC 2009), Lexington, MA, September 22-24, 2009.
- *Workshop on Highly Parallel Processing on a Chip* (HPPC), held in conjunction with *15th International European Conference on Parallel and Distributed Computing* (Euro-Par), Delft, The Netherlands, August 25, 2009.
- *The 9th IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2009), Shanghai, China, May 18-21, 2009.
- *The 15th International Conference on High Performance Computing* (HiPC 2008), Bangalore, India, December 18-21, 2008.
- *14th IEEE International Conference on Parallel and Distributed Systems* (ICPADS), Melbourne, Australia, December 8-10, 2008.
- *The IEEE and ACM Supercomputing Conference 2008* (SC2008), Austin, TX, November 15-21, 2008.
- *1st International Forum on Next-Generation Multicore/Manycore Technologies* (IFMT'08), Cairo, Egypt, November 24-25, 2008.
- *20th International Symposium on Computer Architecture and High Performance Computing* (SBAC-PAD), Campo Grande, MS, Brazil, October 29 - November 1, 2008.
- *9th IEEE/ACM International Conference on Grid Computing* (Grid 2008), Tsukuba, Japan, September 29 - October 1, 2008.
- *The 10th IEEE International Conference on High Performance Computing and Communications* (HPCC 2008), Dalian, China, September 25-27, 2008.
- *The 12th Annual Workshop on High Performance Embedded Computing* (HPEC 2008), Lexington, MA, September 23-25, 2008.
- *The 37th International Conference on Parallel Processing* (ICPP 2008), Portland, OR, September 8-12, 2008.
- *Workshop on Highly Parallel Processing on a Chip* (HPPC), held in conjunction with *14th International European Conference on Parallel and Distributed Computing* (Euro-Par), Las Palmas de Gran Canaria, Spain, August 28, 2008.
- *16th Annual International Conference on Intelligent Systems for Molecular Biology* (ISMB), Toronto, Canada, July 19-23, 2008.
- *1st Workshop on Large-Scale Computing* (LASCO 2008), to be held in conjunction with the USENIX Annual Technical Conference, Boston, MA, June 23, 2008.
- *1st International Workshop on Cell Systems and Applications* (WCSA 2008), to be held in conjunction with the International Symposium on Computer Architecture (ISCA), Beijing, China, June 22, 2008.

- *2nd International Frontiers of Algorithmics Workshop* (FAW 2008), Changsha, China, June 19-21, 2008.
- *The 8th IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2008), Lyon, France, May 2008.
- *2nd Workshop on Multithreaded Architectures and Applications* (MTAAP 2008), Miami, FL, April 18, 2008.
- *The 17th International Heterogeneous Computing Workshop* (HCW 2008), Miami, FL, April 14, 2008.
- *The 22nd IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2008), Miami, FL, April 14-18, 2008.
- *The 2008 International Workshop on Multi-Core Computing Systems* (MuCoCoS'08), Barcelona, Spain, March 4-7, 2008.
- *Workshop on Parallel Programming on Accelerator-Based Systems* (PPABS), held in conjunction with *13th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming* (PPoPP 2008), Salt Lake City, UT, February 23, 2008.
- *International Workshop on Service-Oriented Engineering and Optimization* (SENOPT 07), held in conjunction with *The International Conference on High-Performance Computing* (HiPC 2007), Goa, India, December 18, 2007.
- *The IEEE and ACM Supercomputing Conference 2007* (SC2007), Reno, NV, November 10-16, 2007.
- *GPGPU Workshop*, Boston, MA, October 4, 2007.
- *The 11th Annual Workshop on High Performance Embedded Computing* (HPEC 2007), Lexington, MA, September 18-20, 2007.
- *Parallel Computing* (ParCo 2007), Jülich & Aachen, Germany, September 4-7, 2007.
- *15th Annual International Conference on Intelligent Systems for Molecular Biology* (ISMB) & *6th European Conference on Computational Biology* (ECCB), Vienna, Austria, July 21-25, 2007.
- *The 27th International Conference on Distributed Computing Systems* (ICDCS 2007), Toronto, Canada, June 25-29, 2007.
- *The 7th IEEE International Symposium on Cluster Computing and the Grid* (CCGrid2007), Rio de Janeiro, Brazil, May 14-17, 2007.
- *The 21st IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2007), Long Beach, CA, March 26-30, 2007.
- *Workshop on Multithreaded Architectures and Applications* (MTAAP 2007), Long Beach, CA, March 30, 2007.
- *The 16th International Heterogeneous Computing Workshop* (HCW 2007), Long Beach, CA, March 26, 2007.
- *The 13th International Conference on High Performance Computing* (HiPC 2006), Bangalore, India, December 18-21, 2006.

- *The IEEE and ACM Supercomputing Conference 2006* (SC2006), Tampa, FL, November 11-17, 2006.
- *The IEEE International Conference on Cluster Computing* (Cluster 2006), Barcelona, Spain, September 25-27, 2006.
- *International Workshop on Distributed, High-Performance and Grid Computing in Computational Biology* (GCCB 2006), Eilat, Israel, September 10-13, 2006.
- *The 26th International Conference on Distributed Computing Systems* (ICDCS 2006), Lisboa, Portugal, July 4-7, 2006.
- *IEEE/ACM International Symposium on Cluster Computing and the Grid* (CCGrid2006), Singapore, May 16-19, 2006.
- *The 15th International Heterogeneous Computing Workshop* (HCW 2006), Rhodes Island, Greece, April 25, 2006.
- *High Performance Computing Symposium* (HPC 2006), held in conjunction with the *Spring Simulation Multiconference 2006*, Huntsville, AL, April 2-6, 2006.
- *The IFIP International Conference on Network and Parallel Computing* (NPC 2005), Beijing, China, November 30 - December 2, 2005.
- *The IEEE and ACM Supercomputing Conference 2005* (SC2005), Seattle, WA, November 12-18, 2005.
- *6th IEEE/ACM International Workshop on Grid Computing* (Grid 2005), in conjunction with *SC 2005*, Seattle, WA, November 14, 2005.
- *The Third International Symposium on Parallel Processing and Applications* (ISPA 2005), Nanjing, China, November 2-5, 2005.
- *The IEEE International Conference on Cluster Computing* (Cluster 2005), Boston, MA, September 26-30, 2005.
- *The 18th ISCA International Conference on Parallel and Distributed Computing Systems* (PDCS 2005), Las Vegas, NV, September 12-14, 2005.
- *17th ACM Symposium on Parallelism in Algorithms and Architectures* (SPAA 2005), Las Vegas, NV, July 17-20, 2005.
- *The 34th International Conference on Parallel Processing* (ICPP 2005), Georg Sverdrups House, University of Oslo, Norway, June 14-17, 2005.
- *The International Conference on Computational Science* (ICCS 2005), Atlanta, GA, May 22-25, 2005.
- *The 4th International Workshop on Efficient and Experimental Algorithms* (WEA 2005), Santorini Island, Greece, May 10-13, 2005.
- *Workshop on Patterns in High Performance Computing*, Champaign-Urbana, IL, May 4-6, 2005.
- *IEEE/ACM International Symposium on Cluster Computing and the Grid* (CCGrid05), Cardiff, UK, May 9-12, 2005.
- *High Performance Computing Symposium* (HPC 2005), held in conjunction with the *Spring Simulation Multiconference 2005*, San Diego, CA, April 2-8, 2005.

- *The 14th International Heterogeneous Computing Workshop* (HCW 2005), Denver, CO, April 4, 2005.
- *The Second International Symposium on Parallel Processing and Applications* (ISPA 2004), Hong Kong, China, December 13-15, 2004.
- *The IFIP International Conference on Network and Parallel Computing* (NPC 2004), Wuhan, China, October 18-20, 2004.
- *The IEEE International Conference on Cluster Computing* (Cluster 2004), San Diego, CA, September 20-23, 2004.
- *The 33rd International Conference on Parallel Processing* (ICPP 2004), Montreal, Quebec, Canada, August 15-18, 2004.
- *The International Conference on Computational Science* (ICCS 2004), Cracow, Poland, June 7-9, 2004.
- *The 18th International Symposium on High Performance Computing Systems and Applications* (HPCS 2004), Winnipeg, Manitoba, Canada, May 16-19, 2004.
- *The 13th International Heterogeneous Computing Workshop* (HCW 2004), Santa Fe, NM, April 26, 2004.
- *The IEEE International Conference on Cluster Computing* (Cluster 2003), Hong Kong, December 1-4, 2003.
- *The IEEE and ACM Supercomputing Conference 2003* (SC2003), Phoenix, AZ, November, 2003.
- *The 2003 International Conference on Parallel Processing* (ICPP 2003), Kaohsiung, Taiwan, ROC, October 6-9, 2003.
- *The 5th Workshop on High Performance Scientific and Engineering Computing with Applications* (HPSECA-03), in conjunction with *The 2003 International Conference on Parallel Processing* (ICPP 2003), Kaohsiung, Taiwan, ROC, October 2003.
- *The 2003 International Symposium on Parallel Processing and Applications* (ISPA 2003), Aizu-Wakamatsu City, Japan, July 2-4, 2003.
- *First International Workshop on Heterogeneous and Adaptive Computing – "Challenges of Large Applications in Distributed Environments"* (CLADE 2003), held in conjunction with the *12th IEEE International Symposium on High Performance Distributed Computing* (HPDC-12), Seattle, WA, June 21, 2003.
- *The International Conference on Computational Science* (ICCS 2003), Saint Petersburg, Russian Federation and Melbourne, Australia, June, 2003.
- *The 8th IEEE International Workshop on High-Level Parallel Programming Models and Supportive Environments* (HIPS 2003), Nice, France, April, 2003.
- *The 12th International Heterogeneous Computing Workshop* (HCW 2003), Nice, France, April 22, 2003.
- *Workshop on Algorithm Engineering and Experiments* (ALENEX 2003), (sponsored by DIMACS, ACM SIGACT, and SIAM), Baltimore, MD, January 2003.

- *The IEEE and ACM Supercomputing Conference 2002* (SC2002), Baltimore, MD, November, 2002.
- *Third International Workshop on Grid Computing* (Grid 2002), in conjunction with *SC 2002*, Baltimore, MD, November 18, 2002.
- *The 7th IEEE International Workshop on High-Level Parallel Programming Models and Supportive Environments* (HIPS 2002), Fort Lauderdale, FL, April 15, 2002.
- *Workshop on Bioinformatics and Computational Biology* (BCB 2001), held in conjunction with *The International Conference on High-Performance Computing* (HiPC 2001), Hyderabad, India, December 17, 2001.
- *Second International Workshop on Grid Computing* (Grid 2001), in conjunction with *SC 2001*, Denver, CO, November 12, 2001.
- *Third IEEE International Conference on Cluster Computing* (Cluster 2001), Newport Beach, CA, October 8-11, 2001.
- *Third Annual International Workshop on Active Middleware Services*, San Francisco, CA, August 6, 2001.
- *Tenth SIAM Conference on Parallel Processing for Scientific Computing* (PP01), Norfolk, VA, March 2001.
- *The IEEE Computer Society and ACM SIGARCH International Workshop on Grid Computing* (GRID'2000), Bangalore, India, December 2000.
- *The First Myrinet User Group* (MUG 2000), Lyon, France, September 2000.
- *Workshop on High Performance Scientific and Engineering Computing with Applications* (HPSECA-00), in conjunction with *The 2000 International Conference on Parallel Processing* (ICPP 2000), Toronto, Canada, August 2000.
- *Extreme Linux Workshop 2000*, a full track of the 4th Annual Linux Showcase and Conference, Atlanta, GA, October 10-14, 2000.
- *Second Workshop on Active Middleware Services*, Pittsburgh, PA, August 1-4, 2000.
- *The Sixth International Conference on Applications of High-Performance Computers in Engineering* (HPC 2000), Maui, HI, January 2000.
- *The IEEE Computer Society International Workshop on Cluster Computing* (IWCC99), Melbourne, Australia, December 1999.
- *The 7th IEEE Symposium on the Frontiers of Massively Parallel Processing* (Frontiers'99), Annapolis, MD, February 1999.
- *The 18th International Conference on Distributed Computing Systems* (ICDCS'98), Amsterdam, The Netherlands, May 1998.

• **Miscellaneous Conference Service**:

- Student Volunteer, Supercomputing '95 Conference, San Diego, CA, December 1995.
- Student Volunteer, Supercomputing '94 Conference, Washington, DC, November 1994.

A.5. Invitational Meetings Attended

- Petaflops Frontiers Workshop, McLean, VA, February 6, 1995.
- The Petaflops Frontiers (TPF-3) Workshop, Annapolis, MD, February 22, 1999.
- NSF Workshop on Active Services, Northwestern University, Chicago, Illinois, October 21-22, 1999.
- Experimental Algorithmics, Seminar No. 00371, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, September 10-15, 2000.
- U.S. Senator Bingaman's roundtable meeting of Biotechnology, Sante Fe, NM, September 21, 2000.
- Sandia Petaflops Workshop, Sandia National Laboratories, Albuquerque, NM, June 18, 2002.
- National Coordination Office for Information Technology Research and Development, CRA Workshop on the Road Map for the Revitalization of High End Computing, Washington, DC, June 16-18, 2003.
- Petascale/s Compact Simulation Application Workshop, Argonne National Laboratory and Access Grid, March 22-23, 2005.
- NSF Office of Cyberinfrastructure, HPC Applications Meeting, Chicago, IL, September 20-21, 2005.
- DOE Office of Science, "Computational Science at Scale," Fall Creek Falls Conference, Pikeville, TN, October 16-18, 2005.
- Architectures and Algorithms for Petascale Computing, Seminar No. 06071, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, February 12-17, 2006.
- IBM Cell Broadband Engine Workshop, Palisades, NY, March 6, 2006.
- IBM Petascale Tools Strategy Workshop, IBM Watson Reseach Center, Yorktown Heights, NY, May 16-17, 2006.
- CRA-NIH Workshop on Computational Challenges in Biomedicine, Bethesda, MD, June 15-16, 2006.
- NSF Workshop on Petascale Computing in the Biological Sciences, National Science Foundation, Arlington, VA, August 29-30, 2006.
- Microsoft Research Faculty Summit 2007, Redmond, WA, July 15-17, 2007.
- National Academy of Engineering, 2007 U.S. Frontiers of Engineering Symposium, Redmond, WA, September 24-26, 2007. (83 of the most creative, young engineers in the US selected to attend.)
- DOE/DOD Workshop on Emerging High Performance Architectures & Applications, Washington, DC, November 29-30, 2007.

- Combinatorial Scientific Computing, Seminar No. 09061, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, February 1-6, 2009.
- Federal Strategic Planning Forum for the Networking and Information Technology Research and Development Program, Washington, DC, February 25-26, 2009.
- Graph Search Engineering, Seminar No. 09491, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, November 29 - December 4, 2009.
- DARPA Idea Summit: Edge Finding in a Globally Connected World, Arlington, VA, April 16, 2010.
- Algorithm Engineering, Seminar No. 10261, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, June 27 - July 2, 2010.
- Programming and Runtime Models for Heavily Threaded Systems (PRMHTS), Annapolis, MD, July 27-28, 2010.
- DARPA Extreme Scale Applications Study, September 2010 – April 2011. (Member)
- NSF Future of High Performance Computing workshop, Arlington, VA, December 3, 2010. (invited panelist)
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 16-18, 2012.
- NSF Workshop on Fostering Synergistic Indo-US Collaborations to Accelerate Big Data Applications, Pune, India, December 21-22, 2012.
- DARPA Big Data Colloquium, Arlington, VA, January 29, 2013.
- CRA Computing Leadership Summit, Washington, DC, February 25, 2013.
- Global Grand Challenges Summit, sponsored by the Royal Academy of Engineering and National Academy of Engineering, London, England, March 12-13, 2013.
- DARPA GRAPH Solutions for Big Data Workshop, Arlington, VA, October 8, 2013.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 15-17, 2013.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 14-16, 2014.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 13-15, 2015.
- White House National Strategic Computing Initiative Workshop, Washington, DC, October 20-21, 2015. (invited panelist)
- Rethinking Experimental Methods in Computing, Seminar No. 16111, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, March 13-18, 2016.
- White House National Strategic Computing Initiative Anniversary Workshop, Washington, DC, July 29, 2016.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 25-27, 2016.

- Global Grand Challenges Summit, sponsored by the US National Academy of Engineering (NAE), the UK Royal Academy of Engineering, and the Chinese Academy of Engineering, Washington, DC, July 18-20, 2017.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 17-19, 2017.
- U.S. Department of Homeland Security (DHS) Centers of Excellence Summit, Arlington, VA, May 30-31, 2018.
- High-Performance Graph Algorithms, Seminar No. 18241, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, June 10-15, 2018.
- CIA Directorate of Science and Technology 2018 Summer Summit, Langley, VA, June 5-7. 2018.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 30 - November 1, 2018.
- AI for Science Town Hall Meeting, Department of Energy (DOE) National Laboratories, Argonne National Laboratory, Chicago, IL, July 22-23, 2019.
- Community of Interest meeting on "Future Computing," NITRD High End Computing (HEC) Interagency Working Group (IWG) and the National Strategic Computing Initiative (NSCI) Joint Program Office for Strategic Computing (JPO-SC), NITRD National Coordination Office, Washington, DC, August 5-6, 2019.
- Facebook AI Systems Faculty Summit, Menlo Park, CA, September 20, 2019.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 7 - 10, 2019.
- Exploratory Analysis Summit, Augusta, GA, November 5-7, 2019.
- NVIDIA Simulation for AI Virtual Roundtable, April 9, 2020.
- Computing Research Association (CRA) Conference at Snowbird 2020, July 22-23, 2020.
- OSTP Convening: Pioneering the Future Advanced Computing Ecosystem, NSTC Subcommittee on the Future Advanced Computing Ecosystem (FACE), White House, Office of Science and Technology Policy (OSTP), National Science and Technology Council (NSTC), virtual, August 17-18, 2020.
- DARPA Electronics Resurgence Initiative (ERI) Summit & MTO Symposium, August 18-20, 2020.
- Chesapeake Large-Scale Analytics Conference, October 6-7, 2020.
- Academic Data Science Alliance (ADSA) Leadership Summit and Annual Meeting, October 12-14, 2020.
- 1st Nobel Prize Summit: Our Planet, Our Future, April 26-28, 2021.
- Chesapeake Large-Scale Analytics Conference, October 5-6, 2021.
- DARPA Electronics Resurgence Initiative (ERI) Summit & MTO Symposium, October 19-21, 2021.

- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 24-27, 2022.
- NSF Workshop on Software-hardware Co-Design for Quantum Computing, October 28-29, 2022.
- NSF Workshop on Community Research Infrastructure for Integrated AI-Enabled Malware & Network Data Analytics, January 20, 27, 31, February 3, 2023.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, October 30 - November 2, 2023.
- Scalable Graph Mining and Learning, Seminar No. 23491, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, December 3-8, 2023.
- Discrete Algorithms on Modern and Emerging Compute Infrastructure, Seminar No. 24201, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, May 12-17, 2024.
- Connectomics Conference 2024, Harnack-Haus of the Max Planck Society, Berlin, Germany, June 16-19, 2024.
- Graph Similiarlity Workshop 2024, University of Bristol, and The Heilbronn Institute for Mathematical Research, England, United Kingdom, September 9-13, 2024.
- Chesapeake Large-Scale Analytics Conference, Annapolis, MD, November 4-7, 2024.

B. University Service — New Jersey Institute of Technology

- Chair, Faculty Search Committee, Department of Data Science, 2021-2022, 2023-2024, 2024-2025.
- Chair, Department Chair Search Committee, Department of Data Science, 2021-2022, 2022-2023.
- Member, Tenure and Promotion Committee, Department of Data Science, 2021-present.
- Member, Faculty Search Committee, Department of Data Science, 2022-2023.
- Member, Faculty Research Advisory Board (FRAB) Committee on Research Cyberinfrastructure, 2020-present.
- Member, Distinguished Professors Review Subcommittee, YWCC Representative, 2020-2021.
- Member, Distinguished Professors Committee, 2019-2020.
- Member, Tenure and Promotion Committee, Department of Computer Science, 2019-2020.
- Member, Faculty Search Committee, Department of Computer Science, 2019-2020.
- Member, CIO Search Committee, 2019-2020.

C. Special Assignments at New Jersey Institute of Technology

- Member, State of New Jersey GenAI Task Force Working Group, 2024.

D. University Service — Georgia Tech

- Member, Faculty Council, Institute for Data Engineering and Science (IDEaS), 2017-2019.
- Member, Faculty Council on Data Science and Engineering, 2014-2015.
- Member, Strategic Planning Committee, School of Computational Science & Engineering, College of Computing, 2012-2013.
- Member, Space/Building Planning Committee, School of Computational Science & Engineering, College of Computing, 2012-2013.
- Member, Faculty Recruiting Committee, School of Computational Science & Engineering, College of Computing, 2012-2013.
- Representative for College of Computing, Academic Senate (AS) and General Faculty Assembly (GFA), 2011-2014, elected 2011.
- Chair, Faculty Recruiting Committee, School of Computational Science & Engineering, College of Computing, 2011-2012.
- Member, School Chair Advisory Committee, School of Computational Science & Engineering, College of Computing, (elected), 2011-2012, 2012-2013.
- Member, CSE Seminar and Distinguished Lecture Series Committee, School of Computational Science & Engineering, College of Computing, 2011-2012.
- Chair, School Chair Advisory Committee, School of Computational Science & Engineering, College of Computing, (elected), 2010-2011.
- Chair, Retention, Promotion, Tenure (RPT) Committee, School of Computational Science & Engineering, College of Computing, 2009-2010, 2010-2011, 2012-2013.
- Member, Faculty Recruiting Committee, School of Computational Science & Engineering, College of Computing, 2010-2011.
- Chair, Faculty Recruiting Committee, School of Computational Science & Engineering, College of Computing, 2009-2010.
- Chair, Critical Review Committee, School of Computational Science and Engineering, College of Computing, 2010.
- Chair, Periodic Peer Review Committee for Full Professor in School of Computational Science and Engineering, College of Computing, 2009-2010.
- Member, Periodic Peer Review Committee for Full Professor in School of Computational Science and Engineering, College of Computing, 2009-2010.
- Member, Retention, Promotion, Tenure (RPT) Committee, College of Computing, 2008-2009, 2012-2014.

- Member, Dean's Advisory Committee, College of Computing, 2009-2010, elected 2009.
- Chair, Chair Advisory Committee, School of Computational Science & Engineering, College of Computing, 2009-2010, elected 2009.
- Member, Integrative BioSystems Institute (IBSI) Advisory Committee, 2008-present.
- Coordinator, Faculty Recruiting Committee / High-Performance Computing, Computational Science & Engineering Division, College of Computing, 2007-2008.
- Member, Computational Biology Faculty Search Committee, School of Biology, 2007-2008.
- Chair, Provost's Bioinformatics Review Committee, Fall 2007.
- Chair, Faculty Recruiting Committee, Computational Science & Engineering Division, College of Computing, 2006-2007.
- Member, Provost's HPC Task Force, 2006-2007.
- Member, Technology Services Advisory Committee (TSAC), College of Computing, 2006.
- Representative, Undergraduate Research Opportunities in Computing (UROC) Program, Computational Science & Engineering Division, College of Computing, 2006-present.
- Member, Faculty Recruiting Committee, Computational Science & Engineering Division, College of Computing, 2005-2006.
- Member, Graduate Admissions Committee, College of Computing, 2005-2006.
- Member, Graduate Committee, College of Computing, 2005-2006.

E. Special Assignments at Georgia Tech

- Chair, Oak Ridge - Georgia Tech Linkage Task Force, Georgia Institute of Technology, 2006.
- Director of Graduate Studies, Computational Science & Engineering Division, College of Computing, 2005-2006.

F. University Service — University of New Mexico

- Member, Tenure & Promotion Committee, Electrical and Computer Engineering Department, 2004-2005.
- Member, ECE Chair Search Committee, 2004-2005.
- Member, Tenure & Promotion Committee, Electrical and Computer Engineering Department, 2003-2004.
- Member, Committee on Studies, Dean Paul Roth, School of Medicine, Summer 2003.
- Member, Awards Committee, Electrical and Computer Engineering Department, 2002-2003.
- Coordinator, High-Performance Computing Track of Computer Engineering and Graduate Committee Member, Electrical and Computer Engineering Department, 2002-2003.

- Member, Office of Research High-Performance Computing Center Committee, Fall 2001 - Spring 2002.
- Member, Graduate Committee, Electrical and Computer Engineering Department, 2001-2002.
- Member, SOE Research Excellence Awards Committee, Spring 2001.
- Member, Awards Committee, Electrical and Computer Engineering Department, Spring 2001.
- Area Chair for Computer Engineering, Graduate Committee, Electrical and Computer Engineering Department, Fall 2000 - Summer 2001.
- Faculty Liaison, Centennial Science and Engineering Library, Fall 2000 - Spring 2005.
- Member, Strategic Planning, Fall 2000.
- Host, ECE and IEEE Distinguished Guest Dr. Bruce Eisenstein, 2000 IEEE President, May 26-27, 2000.
- Coordinator, SOE/ECE Executive Meeting and Tour with the National Radio Astronomy Observatory (NRAO), April 13, 2000.
- Member, Awards Committee, Electrical and Computer Engineering Department, Spring 2000.
- Member, NSF/Alliance $1.5M Linux Supercluster Panel Review, Spring 2000.
- Member, School of Engineering Math Task Force, 1999 - 2000.
- Chairperson, Computer Use Committee, Electrical and Computer Engineering Department, 1999.
- Member, Search Committee for Systems Analyst III, Electrical and Computer Engineering Department, 1999.
- Member, Search Committee for Computer Engineering Faculty Position, Electrical and Computer Engineering Department, 1998.
- Outside Member, Search Committee for Computer Science Faculty Position, Computer Science Department, 1998.
- Faculty Advisor, ECE Web Page Designer Staff Position, Electrical and Computer Engineering Department, 1998.
- Member, Research Allocation Committee, Faculty Senate, 1998-2000.
- Member, Search Committee for Manager of Systems and Programming, Electrical and Computer Engineering Department, 1998.
- Represented the University of New Mexico at Sandia National Laboratories' "Adventures in Supercomputing" EXPO '98.
- Member, Computer Use Committee, Electrical and Computer Engineering Department, 1998.
- Associate Faculty, Albuquerque High Performance Computing Center.

- Associated Faculty & Program Committee, Science & Engineering Computation (SEC) Program, Albuquerque High Performance Computing Center, 1998-2002.

G. University Service — University of Maryland, College Park

- College of Engineering Graduate Student Senator, 1995-96.
- Electrical Engineering Graduate Student Association, Founder and President, 1994-95.
- Graduate student representative, Department Council, Electrical Engineering Department, 1994-95.
- Graduate student representative, Graduate Studies and Research Committee, Electrical Engineering Department, 1993-94

H. Ph.D. Examining Committees — New Jersey Institute of Technology

- Ajim Uddin (advisor: Dantong Yu), 2022.
- Minjuan "Maggie" Zhang (advisor: Chase Wu), 2024.
- Dogacan Yilmaz (advisor: Esra Büyüktahtakın Toy), 2022.

I. Ph.D. Examining Committees — Georgia Tech

- Nova Ahmed (advisor: Umakishore Ramachandran), 2010.
- Senyo Apewokin (advisor: Scott Wills), 2008.
- Michael Ryan Bales (advisor: Scott Wills), 2011.
- Jinyoun Cho (advisor: John Copeland), 2015.
- Jee Choi (advisor: Rich Vuduc), 2015.
- Michael Clark (advisor: Pablo Laguna), 2016.
- Rocky Dunlap (advisor: Leo Mark), 2013.
- Jared Gossett (advisor: Steve Harvey), 2013.
- Yan Gu (advisor: Richard Fujimoto), 2007.
- Cory Hawkins (advisor: Scott Wills), 2007.
- Zhengyu He (advisor: Bo Hong), 2012.
- Eric Robert Hein (advisor: Tom Conte), 2018.

- Reza Haji Aghaee Khiabani (co-advisors: Cyrus Aidun and Yogendra Joshi), 2010.
- Andrey Kislyuk (advisor: Joshua Weitz), 2010.
- Deuk Lee (advisor: John Copeland), 2017.
- Jiajia Li (advisor: Rich Vuduc), 2018.
- Xing Liu (advisor: Edmond Chow), 2014.
- Tony Pan (advisor: Srinivas Aluru), 2018.
- Alfred Park (advisor: Richard Fujimoto), 2008.
- Daniel A. Reasor Jr. (advisor: Cyrus Aidun), 2011.
- John Wilcher (advisor: Aaron Lanterman), 2015.
- Chenxi Yin (advisor: Turgey Ayer), 2016.
- Srikanth Yoginath (advisor: Kalyan Perumalla), 2014.

J. Ph.D. Examining Committees — University of New Mexico

- Jose Salazar, 1998.
- Saeid Taheri, 2004.
- Jijun Tang, 2004.
- Yan Zhu, 2004.
- Michael Collins, 2005.
- Zhaoxian Zhou, 2005.
- Shibin Qiu, 2006.
- Monique Morin, 2007.

K. Ph.D. Examining Committees — Other Universities

- Jaroslaw Zola, Institut National Polytechnique de Grenoble, France, 2005.
- Weiguo Liu, Nanyang Technological University, Singapore, 2006.
- David Kunzman, University of Illinois at Urbana-Champaign, 2011.
- Karl Bäckström, Chalmers University of Technology, Sweden, 2023.
- Baqiou Liu, University of Illinois, Urbana-Champaign, 2024.

L. M.S. Thesis Committees — University of New Mexico

- Ihsan Demir, 2000.
- Adam Siepel, 2001.
- Todd Underwood, 2001.
- Yan Xu, 2001.
- William F. Lawry, 2002.
- Mahin Mahmoodi, 2002.
- Jingkun Yu, 2002.
- Shu Zhou, 2002.
- Sean Brennan, 2003.
- G. Matthew Fricke, 2003.
- Edgar A. León, 2003.
- Anna Tholse, 2003.
- Zak Betz, 2004.
- Joel V. Earnest-DeYoung, 2004.
- Tao Liu, 2004.
- Sung-hee Lee, 2005.
- Sushant Sharma, 2005.
- M. Leigh Fanning, 2007.

M. Consulting and Advisory Appointments

- Scientific Advisory Board, Flatiron Institute, Simons Foundation, July 2023 - June 2026.
- Researcher, R&D Engineering, Goldman Sachs, October 2019 - February 2024.
- Strategic Advisory Board, OSET Institute, September 2019 - present.
- Advisory Board, Trovares, January 2019 - April 2020.
- Chief Data Scientist, Ionic Security, Inc., June 2013 - 2019.
- Chief Data Scientist, BigHive, Inc., January 2018 - December 2018.
- Board Member, Emcien, Inc., 2012-2013.

- Consultant, CuraGen Corporation, New Haven, CT. High performance computation for assembling most complete mouse EST database.
- Consultant, Visionary Solutions, Inc., Philadelphia, PA. Image restoration algorithms for textual document processing.
- Consultant, Gerson Lehrman Group, New York, NY.
- Technical Advisory Board, DSPlogic, Inc., Germantown, MD. High Performance Reconfigurable Computing.
- Member, IBM Technical Leadership Forum, 2007-2010.
- Advisory Council Member, Internet2. Research Advisory Council (RAC), elected, 2007-2011.
- Member, IBM Customer Advisory Council for Multicore Acceleration, 2007-2009.
- Advisory Committee Member, NIH Research Resource supported center: Multiscale Modeling Tools for Structural Biology, (PI: Charles L. Brooks III), 2007-2010.
- Advisory Committee Member, Flash Gordon: A Data Intensive Computer, University of California, San Diego, NSF Office of Cyberinfrastructure award NSF-0910847, (PI: Michael Norman, co-PI: Allan Snavely), 2009-2011.
- Advisory Committee Member, Signature Discovery Initiative, Pacific Northwest National Laboratory, 2012-2013.

IV. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION

A. Honors and Awards

- **Innovation Hall of Fame**, A. James School of Engineering, University of Maryland, (2022).
- **IEEE Computer Society Sidney Fernbach Award**. Citation: "for the development of Linux-based massively parallel production computers and for pioneering contributions to scalable discrete parallel algorithms for real-world applications."
- The Institute of Electrical and Electronics Engineers (IEEE), **Fellow**. Citation: "for contributions to parallel algorithms for combinatorial problems and computational biology."
- Association for Computing Machinery (ACM), **Fellow**. Citation: "for contributions to high-performance computing systems, graph analytics, and technical leadership in parallel computing."
- American Association for the Advancement of Science (AAAS), **Fellow**. Citation: "for distinguished contributions to the field of computational science and engineering."
- Society for Industrial and Applied Mathematics (SIAM), **Fellow**. Citation: "for contributions in high-performance algorithms and streaming analytics and for leadership in the field of computational science."

- **Sigma Xi**, Full Member.
- **Eta Kappa Nu**: Electrical Engineering Honor Society.
- **Tau Beta Pi**: National Engineering Honor Society.
- **National Academy of Inventors**, Honorary Member.
- Sigma Xi **Distinguished Lecturer**, 1 July 2023 - 30 June 2025.
- IEEE Computer Society **Meritorious Service Award**, 2021. Citation: "For service as General Co-Chair for the 2021 International Parallel and Distributed Processing Symposium (IPDPS)."
- Georgia Institute of Technology, College of Computing, **Outstanding Senior Faculty Research Award**, 2014.
- IEEE Computer Society Technical Committee on Parallel Processing (TCPP) **Outstanding Service Contributions Award**, 2013.
- University of Maryland, Electrical and Computer Engineering **Distinguished Alumni Award**, 2012.
- IEEE Computer Society **Golden Core Member Award**, 2011.
- IEEE Computer Society **Meritorious Service Award**, 2010. Citation: "For service as General Chair for the 2010 International Parallel and Distributed Processing Symposium (IPDPS)."
- IEEE Computer Society **Certificate of Appreciation Award**, in 2006, 2007, and 2011.
- IBM **Faculty Award**, 2006,2009.
- IEEE Computer Society **Distinguished Visitors Program**, 2003-2005, 2021-2024.
- Georgia Institute of Technology, College of Computing, **Dean's Award**, 2007.
- **Lawton-Ellis Award** for Excellence in Research, Teaching, and Community Service, University of New Mexico, 2002.
- **Regents' Lecturer** in the School of Engineering, University of New Mexico, 2001.
- **Junior Research Excellence Award**, School of Engineering, University of New Mexico, 2000.
- **Outstanding Researcher of the Year**, Electrical and Computer Engineering Department, University of New Mexico, 2000 (*First Recipient of this Award*).
- IEEE **Young Outstanding Engineer Award**, 2000.
- **Omicron Delta Kappa**: National Leadership Honor Society, 1995.
- **1st Place**, Paper Content, UMCP IEEE Student Conference, Beacon to the Professional World, College Park, MD, April 8-9, 1995.
- NASA Graduate Student Researcher Fellowship, 1992-1995.

- **Elizabeth Major Nevius Award** for outstanding leadership, scholarship, and citizenship; Lehigh University, June 1990.
- ATLSS Center Graduate Research Fellowship, Lehigh Univ., 1990-91.
- **Eagle Scout**, Boy Scouts of America.
- **Vigil Honor**, Order of the Arrow, BSA.
- National Merit Commended Student.

B. Patents

- Quantum interior point method, Alexander M. Dalzell, B. David Clader, Grant Salton, Mario Berta, Cedrick Yen-Yu Lin, David A. Bader, William J. Zeng. Current Assignee: Goldman Sachs and Co LLC. 4 Oct 2023 application filed, 2 May 2024 patent published.

C. Editorial Service

- Editor-in-Chief, The ACM Transactions on Parallel Computing (November 2018-present).
- Editor-in-Chief, The IEEE Transactions on Parallel and Distributed Systems (2014-2017).
- Associate Editor-in-Chief, Journal of Parallel and Distributed Computing (Elsevier), (2011-2018).
- Associate Editor, The IEEE Transactions on Computers (2011-2013).
- Associate Editor (Founding), The ACM Transactions on Parallel Computing (2013-2018).
- Associate Editor, The IEEE Transactions on Parallel and Distributed Systems (2005-2008).
- Associate Editor, The ACM Journal of Experimental Algorithmics, (2003-2023).
- Associate Editor, Journal of Information Science and Engineering, (1 Aug 2011 - 2013).
- Associate (Founding) Editor, The IEEE Distributed Systems Online, (2004-2008).
- Associate Editor, Parallel Computing (Elsevier Journal), (2006-2013).
- Associate Editor, Journal of Computational Science (Elsevier), (2009-2013).
- Subject Area Editor, Journal of Parallel and Distributed Computing (Elsevier), (2010).
- Member, Editorial Board, Encyclopedia of Parallel Computing (Springer), (2008-present).
- Member of the Founding Editorial Board, The International Journal of High Performance Computing and Networking (IJHPCN), (2003-2009).

- Member, Editorial Board, Scientific Programming Special Issue on High Performance Computing on Cell/B.E. Processors, (2008).
- IEEE Computer Society "Computer 100" Member, (1994-1995).

V. OTHER CONTRIBUTIONS

A. Seminar Presentations (Invited Papers and Talks at Meetings and Symposia)

1. "AI and HPC," NJIT Homecoming AI Talk, New Jersey Institute of Technology, Newark, NJ, October 19, 2024.
2. "NJIT AI Lecture Series with David Bader, Sponsored by DataBank," Panel Moderator, New Jersey Institute of Technology, Newark, NJ, October 16, 2024.
3. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," EFCL Future Computing Seminar, ETH Zürich, Switzerland, July 12, 2024
4. "Importance of Large Sparse Graph Computational in the AI/ML Era," Panelist, *Workshop on Graphs, Architectures, Programming, and Learning (GrAPL 2024)*, co-located with *The 38th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2024)*, San Fransisco, CA, May 27, 2024.
5. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," Computer Science & Engineering Department Seminar Talk, Lehigh University, Bethlehem, PA, May 1, 2024.
6. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," Distinguished Speaker Series on Scalable Algorithms for Big Data Analytics, organized by the Society for Industrial and Applied Mathematics (SIAM) JUIT Student Chapter, Jaypee University of Information Technology (JUIT), India, (virtual) March 14, 2024
7. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," Distinguished Lecture Series, Department of Computer Science, University of Texas, Austin, TX, February 8, 2024
8. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," UMIACS Distinguished Lecture Series, University of Maryand, College Park, MD, January 26, 2024
9. "Arachne: An Open-Source Framework for Interactive Massive-Scale Graph Analytics," Scalable Graph Mining and Learning Seminar No. 23491, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, December 3-8, 2023
10. "Solving Global Grand Challenges with High Performance Data Analytics," SC23 Asia Supercomputer Community, 32nd HPC Connection Workshop, Denver, CO, November 15, 2023.

11. "Next Big Application(s) for HPC after Deep Learning," Panelist, *The 37th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2023)*, St. Petersburg, FL, May 17, 2023.
12. "Solving Global Grand Challenges with High Performance Data Analytics," Computer Science Seminar Series, Barnard College, Columbia University, New York, NY, May 5, 2023.
13. "Massive Scale Analytics for Real-World Applications," presented at the 82nd HPC User Forum, Princeton, NJ, April 18, 2023.
14. "Future of Security," Cyber Research Salon, Accenture, Washington, DC, April 4, 2023.
15. "Solving Global Grand Challenges with High Performance Data Analytics," Department of Computer Science and Automation, Indian Institute of Science, Bengaluru, India, December 21, 2022.
16. "Innovations for Solving Global Grand Challenges," presented at the Booz Allen Hamilton Distinguished Colloquium Series in Electrical and Computer Engineering, University of Maryland, College Park, November 11, 2022.
17. Panelist, Data Revolution in Market-Driven Applications, NAI-NJIT Chapter Workshop, Sustainable Societies: Data Revolution, New Jersey Institute of Technology, October 27, 2022
18. "Solving Global Grand Challenges with High Performance Data Analytics," Region 10 IEEE Computer Society Mega DVP Program, May 19, 2022.
19. "Building an Effective Incident Response Plan: Is Your Organization Prepared?" Keynote Panel Moderator, The Millennium Alliance, Virtual, May 18, 2022.
20. "Quantum Computing," American Institute of Chemical Engineers (AIChE) New Jersey Section, Virtual, April 19, 2022.
21. "The International Race to Exascale Supercomputing," Laboratory for Physical Sciences, Seminar Series, College Park, MD, November 10, 2021.
22. "The International Race to Exascale Supercomputing," Johns Hopkins University, Applied Physics Laboratory Colloquium Series, Laurel, MD, September 24, 2021.
23. Panelist, Best practies for Data-intensive applications, Xpert Network Panel, University of Delaware, February 18, 2021.
24. "Solving Global Grand Challenges with High Performance Data Analytics," Large-Scale Data & Systems, *Imperial College London*, UK, January 28, 2021.
25. "Massive-Scale Analytics for Real-World Grand Challenges," presented virtually at the *TTI/Vanguard Virtual Field Trip to NJIT*, October 27, 2020.
26. "Using Graphs to Enable National-Scale Analytics," presented virtually at the *UK Government Communications Headquarters (GCHQ)*, October 22, 2020.
27. "Data Science at New Jersey Institute of Technology," Challenges and Best Practices for Creating Data Science Institutes and Programs, presented at the *Academic Data Science Alliance (ADSA) Leadership Summit and Annual Meeting*, October 12, 2020.

28. "Solving Global Grand Challenges with High Performance Data Analytics," presented at the *Virtual Computational Data Science Workshop*, *U.S. Army Corps of Engineers, Engineer Research and Development Center (ERC)*, August 25, 2020.
29. "Solving Global Grand Challenges with High Performance Data Analytics," presented at the *Fast Code Seminar*, *MIT*, June 8, 2020.
30. "Massive Scale Analytics for Real-World Applications," presented at the 76th HPC User Forum, Princeton, NJ, April 1, 2020.
31. "Solving Global Grand Challenges with High Performance Data Analytics," presented at the Spring 2020 Distinguished Speaker Series, College of Science, Rochester Institute of Technology, Rochester, NY, February 5, 2020.
32. "Solving Global Grand Challenges with High Performance Data Analytics," presented at the *Applied Math Colloquium*, *New Jersey Institute of Technology*, December 6, 2019.
33. "Solving Global Grand Challenges with High Performance Data Analytics," presented at the *Computer Science Lecture Series*, *New York University*, November 15, 2019.
34. "Massive-scale Analytics," presented at the Fall 2019 Distinguished Speaker Series, Department of Computer & Information Sciences, University of Delaware, October 3, 2019.
35. "Massive-scale Analytics," presented at the Department of Computer & Information Sciences, Temple University, October 2, 2019.
36. "Real-World Analytics," presented at *Networks: Cyber, Social, Neural, and Data Science Systems*, *MIT*, August 14, 2019.
37. "Accelerating Graph Analytics with Novel Architectures," presented at the *Electrical & Computer Engineering Lecture Series*, *New York University*, February 7, 2019.
38. Panelist, "HPC Graph Toolkits" Panel, The 30th IEEE and ACM Supercomputing Conference (SC18), Dallas, TX, November 13, 2018.
39. "Massive-scale Streaming Analytics," presented at the *Computer Science & Engineering Lecture Series*, *New York University*, October 26, 2018.
40. "Predictive Analysis of Massive Streaming Graphs," DHS S&T Office of University Programs, Virtual Brown Bag, June 4, 2018.
41. Panelist, "HPC Graph Toolkits" Panel, The 29th IEEE and ACM Supercomputing Conference (SC17), Denver, CO, November 14, 2017.
42. Panelist, Forward Looking Panel, *2017 SIAM Conference on Computational Science and Engineering* (CSE17), Atlanta, GA, February 27 - March 3, 2017.
43. "Massive-scale Streaming Analytics," presented at the *Distinguished Lecture Series*, *Wayne State University*, February 21, 2017.
44. "Experimental Methodology in Parallel and Streaming Analytics," Rethinking Experimental Methods in Computing, Seminar No. 16111, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, March 13-18, 2016.

45. Panelist, At the NITRD High End Computing (HEC) Interagency Working Group (IWG) and Big Data Senior Steering Group (SSG) "Supercomputing and Big Data: From Collision to Convergence" Panel, The 27th IEEE and ACM Supercomputing Conference (SC15), Austin, TX, November 18, 2015.
46. "Massive-Scale Graph Analytics," presented at the Center for Computational Relativity and Gravitation, Rochester Institute of Technology, Rochester, NY, August 27, 2015.
47. "What kind of heterogeneity is likely in future parallel and distributed platforms?" Panelist, at the 24th International Heterogeneity in Computing Workshop (HCW 2015), held in conjunction with the 29th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2015), Hyderabad, India, May 25, 2015.
48. "Massive-scale Streaming Analytics," presented at the *National Centers for Academic Excellence (CAE) Tech Talk Series*, April 30, 2015.
49. "Draft Graph BLAS Primitives," D.A. Bader, A. Buluç, J. Gilbert, J. Gonzalez, J. Kepner and T. Mattson, Birds-of-a-Feather presented at the *The 18th Annual IEEE High Performance Extreme Computing Conference* (HPEC), Waltham, MA, September 9-11, 2014.
50. "Eighth Graph500 List," Birds-of-a-Feather presented at the 29th International Supercomputing Conference (ISC), Leipzig, Germany, June 23, 2014.
51. "Mono-Site (centralized) Large Scale Data Mining: Hadoop, HPC, GPU," at the Parallel and Distributed Data Analytics (PDDA) CEA/EDF/INRIA Summer School, CEA Cadarache, France, June 16-20, 2014.
52. "Multi-threaded Graph Streaming," at the Graph Algorithms Building Blocks (GABB 2014), held in conjunction with the 28th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2014), Phoenix, AZ, May 23, 2014.
53. "Heterogeneity in Large-Scale Data Analytics," Panelist, at the 23rd International Heterogeneity in Computing Workshop (HCW 2014), held in conjunction with the 28th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2014), Phoenix, AZ, May 19, 2014.
54. "Big Data Analytics," Inspur HPC Connections Workshop, co-located with The 25th IEEE and ACM Supercomputing Conference (SC13), Denver, CO, November 20, 2013.
55. "Massive-Scale Graph Analytics," Panelist, At the Intersection of Big Data and Extreme Computing Birds-of-a-Feather, The 25th IEEE and ACM Supercomputing Conference (SC13), Denver, CO, November 20, 2013.
56. "Seventh Graph500 List," Birds-of-a-Feather presented at the The 25th IEEE and ACM Supercomputing Conference (SC13), Denver, CO, November 19, 2013.
57. "Sixth Graph500 List," Birds-of-a-Feather presented at the 28th International Supercomputing Conference (ISC), Leipzig, Germany, June 18, 2013.
58. "Making Connections in Big Data: Exascale Graph Analytics & the Graph500," Panelist, Latest Advances in Scalable Algorithms for Large Scale Systems, 28th International Supercomputing Conference (ISC), Leipzig, Germany, June 18, 2013.

59. "Massive-scale Graph Analytics," Czech Academy of Sciences, Prague, Czech Republic, June 11, 2013.
60. "The Future of Big Data," Panelist, Big Data in 10 Years, *The IEEE International Parallel and Distributed Processing Symposium* (IPDPS 2013), Boston, MA, May 22, 2013.
61. "Massive-scale Graph Analytics," Panelist, Big Data Meets Big Models, *2013 SIAM Conference on Computational Science and Engineering* (CSE13), Boston, MA, February 25 - March 1, 2013.
62. "Massive-scale Graph Analytics," presented at the *Workshop on Massive Data Analytics on Scalable Systems (DataMASS)*, *The 19th IEEE International Conference on High Performance Computing (HiPC 2012)*, Pune, India, December 18, 2012.
63. "Massive-scale Streaming Graph Analytics," Panelist, *Graph Analytics in Big Data*, *The 24th IEEE/ACM Supercomputing Conference (SC12)*, Salt Lake City, UT, November 15, 2012.
64. "Fifth Graph500 List," Birds-of-a-Feather presented at the *The 24th IEEE/ACM Supercomputing Conference (SC12)*, Salt Lake City, UT, November 13, 2012.
65. "Massive-scale Streaming Graph Analytics," Panelist, *Cyber Security's Big Data, Graphs, and Signatures*, *The 24th IEEE/ACM Supercomputing Conference (SC12)*, Salt Lake City, UT, November 13, 2012.
66. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at the Booz Allen Hamilton Distinguished Colloquium Series in Electrical and Computer Engineering, University of Maryland, College Park, September 28, 2012.
67. "Massive-scale Graph Analytics," AGH University of Science and Technology, Krakow, Poland, September 17, 2012.
68. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at the NSF Workshop on Research Directions in the Principles of Parallel Computation, Pittsburgh, PA, June 28, 2012.
69. "Fourth Graph500 List," Birds-of-a-Feather presented at the 27th International Supercomputing Conference (ISC), Hamburg, Germany, June 19, 2012.
70. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at the Student Research Symposium, The 18th IEEE International Conference on High Performance Computing (HiPC 2011), Bengaluru, India, December 18, 2011.
71. "Opportunities and Challenges in Massive Data-Intensive Computing," presented at the Big Data, Analytics, & HPC workshop, Georgia Tech Research Institute Technical Series, Atlanta, GA, December 9, 2011.
72. "STING: Spatio-Temporal Interaction Networks and Graphs for Intel Systems," presented at the Intel Workshop on Parallel Algorithms for Non-Numeric Computing, San Jose, CA, August 29, 2011.
73. "Graph 500 Benchmark for Data Intensive HPC Applications," Birds-of-a-Feather presented at the 26th International Supercomputing Conference (ISC), Hamburg, Germany, June 19-23, 2011.

74. "Accelerating Real-World Applications," presented at the AMD Fusion Developer Summit 11, Bellevue, WA, June 14, 2011.
75. "Graph Based Approaches to Scientific Data," presented at the Climate Knowledge Discovery Workshop, Deutsches Klimarechenzentrum GmbH (DKRZ), Hamburg, Germany, March 30 - April 1, 2011.
76. "Broader Engagements and Workforce Development in High Performance Computing," Panelist, presented at the NSF Future of High Performance Computing workshop, Arlington, VA, December 3, 2010.
77. "Unveiling the First Graph 500 List," Birds-of-a-Feather presented at the *The 22nd IEEE and ACM Supercomputing Conference* (SC10), New Orleans, LA, November 13-19, 2010.
78. "Massive-Scale Analysis of Streaming Social Networks," presented at the joint Electrical and Computer Engineering Department and Computer Science Department Special Seminar, Colorado State University, Fort Collins, CO, October 1, 2010.
79. "Massive-Scale Analysis of Streaming Social Networks," presented at Clusters, Clouds, and Grids for Scientific Computing (CCGSC 2010), Flat Rock, NC, September 10, 2010.
80. "Massive-Scale Analysis of Streaming Social Networks," presented at the ACM Chapter of Georgia State University, Atlanta, GA, September 1, 2010.
81. "Architectural and Programming Support for Massive Streaming Analytics," presented at the Workshop on Programming and Runtime Models for Heavily Threaded Systems (PRMHTS), Annapolis, MD, July 27, 2010.
82. "Massive Scale Analytics of Streaming Social Networks," presented at the Workshop on Algorithms for Massive Modern Data Sets (MMDS), Stanford University, Stanford, CA, June 15, 2010.
83. "Graph 500 Benchmark for Data Intensive HPC Applications," Birds-of-a-Feather presented at the 25th International Supercomputing Conference (ISC), Hamburg, Germany, May 30 - June 3, 2010.
84. "Memory Driven Applications," and "Executive Panel Feedback," Panelist, *2009 Advanced Computing Systems (ACS) Research Program Workshop*, Annapolis, MD, September 16-17, 2009.
85. "Accelerating Data-Intensive Scientific Applications," presented at the *Georgia Tech/AFRL Computational Science Workshop on Computational Science Challenges Using Emerging & Massively Parallel Computer Architectures*, Atlanta, GA, August 17, 2009.
86. "Petascale Computing for Computational Biology and Genomics," presented at the Computational Life Sciences lecture series, Emory University, Atlanta, GA, December 10, 2008.
87. "High Performance Computing for the Analysis of Massive Graphs," *Knowledge Discovery and Dissemination (KDD) Conference 2008*, Oak Ridge, TN, December 3, 2008.
88. "Accelerating Applications on Heterogeneous Multicore Platforms," Panelist, *Can Developing Applications for Massively Parallel Systems with Heterogeneous Processors Be Made*

Easy(er)?, *The IEEE and ACM Supercomputing Conference 2008 (SC08)*, Austin, TX, November 18, 2008.

89. "Petascale Computing for Computational Biology and Genomics," presented at the *Frontiers in Multi-Scale Systems Biology, An International Launch Conference Introducing Georgia Tech's New Integrative BioSystems Institute*, Atlanta, GA, October 18-21, 2008.
90. "Fast Transforms Using the Cell Broadband Engine Processor," presented at the *Workshop on Programming Models for Modern Architectures*, *Los Alamos Computer Science Symposium*, (LACSS), Santa Fe, NM, October 15, 2008.
91. "Exascale Analytics for Large-Scale Graph Problems and Computational Biology," presented at the Computational Science and Engineering Symposium, Georgia Institute of Technology, September 26, 2008.
92. "Petascale Computing for Large-Scale Graph Problems and Computational Biology," presented at North Carolina State University, September 22, 2008.
93. "Petascale Computing for Large-Scale Graph Problems and Computational Biology," presented at the University of Basel, Switzerland, September 11, 2008.
94. "Petascale Computing for Large-Scale Graph Problems and Computational Biology," presented at the 37th SPEEDUP Workshop on High-Performance Computing, ETH Zürich, Switzerland, September 8, 2008.
95. "Fast Transforms Using the Cell Broadband Engine Processor," presented at the Frontiers of Multicore Computing Workshop, University of Maryland, Baltimore County (UMBC), Baltimore, MD, August 24, 2008.
96. "Exascale Analytics in Biology, Social Networks, and Security," presented in the DARPA Exascale Study, Atlanta, GA, July 9, 2008. (by invitation)
97. "Petascale Phylogenetic Reconstruction of Evolutionary Histories," presented in the Emerson Center Lectureship Symposium, Emory University, Atlanta, GA, March 31, 2008.
98. "Petascale Computing for Large-Scale Graph Problems," presented at the Barcelona Supercomputing Center, Universitat Politècnica de Catalunya, Barcelona, Spain, March 5, 2008.
99. "Petascale Computing for Large-Scale Graph Problems," presented at the Computer Science Department, University of Georgia, Athens, GA, January 18, 2008.
100. "Petascale Phylogenetic Reconstruction of Evolutionary Histories," presented in the Distinguished Lecture Series in Systems Biology, Center for the Study of Systems Biology, Georgia Institute of Technology, Atlanta, GA, December 11, 2007.
101. "Petascale Phylogenetic Reconstruction of Evolutionary Histories," presented at George Washington University, Washington, DC, November 28, 2007.
102. "Petascale Computing for Large-Scale Graph Problems," presented at Electrical and Computer Engineering Department, University of New Mexico, Albuquerque, NM, October 26, 2007.

103. "Petascale Computing for Large-Scale Graph Problems," presented at Lawrence Livermore National Laboratory, Livermore, CA, July 26, 2007.

104. "Manycore Algorithms," Panelist, Manycore Computing Workshop, Seattle, WA, June 21, 2007.

105. "Petascale Science and Engineering: Georgia Tech's Leadership in the Manyscale^{TM} Transformation," SOS11 Conference: Challenges of Sustained Petascale Computation, Key West, FL, June 12, 2007.

106. "Petascale Computing for Large-Scale Graph Problems," presented at the Georgia Tech Summer Undergraduate Research Experience (SURE) Program for Minorities Seminar Series, June 7, 2007.

107. "Achieving sustainability through exascale analysis of complex biological networks," Simulation and Modeling at the Exascale for Energy, Ecological Sustainability and Global Security (E3SGS) Town Hall Meeting, Oak Ridge National Laboratory, Oak Ridge, TN, May 17, 2007.

108. "Building a Cell Ecosystem," Summit on Software and Algorithms for the Cell Processor, Knoxville, TN, October 25, 2006.

109. "DARPA HPCS Scalable Synthetic Compact Application #2: Graph Analysis, Version 2.0," High Productivity Computing Systems (HPCS) Productivity Team Meeting, Denver, CO, June 22, 2006.

110. "Whole Genome Phylogenetic Reconstruction," presented at the High Throughput Biology Center, Johns Hopkins University, June 14, 2006.

111. "Efficient Shared Memory Algorithms and Implementations for solving large-scale graph problems," with Kamesh Madduri, presented at National Security Agency, May 25, 2006.

112. "Petascale Computing for Large-Scale Graph Problems," presented at Architectures and Algorithms for Petascale Computing, Seminar No. 06071, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, February 14, 2006.

113. "Discrete Sciences: High-Performance Computing," Oak Ridge – Georgia Tech Discrete Sciences Workshop, Atlanta, GA, January 20, 2006.

114. "DARPA HPCS Scalable Synthetic Compact Application #2: Graph Analysis," High Productivity Computing Systems (HPCS) Productivity Meeting, Marina del Rey, CA, January 11, 2006.

115. "High-Performance Computing for Large-Scale Graph Problems and Computational Biology," presented at Oak Ridge National Laboratory, September 19, 2005.

116. "High-Performance Algorithm Engineering for Large-Scale Graph Problems and Computational Biology," presented at the *The 4th International Workshop on Efficient and Experimental Algorithms* (WEA 2005), Santorini Island, Greece, May 11, 2005.

117. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Computer Science Department, Kent State University, May 4, 2005.

118. "On the Architectural Requirements for Efficient Execution of Graph Algorithms," presented at Sandia National Laboratories, Albuquerque, NM, March 24, 2005.
119. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the College of Computing, Georgia Institute of Technology, March 17, 2005.
120. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Department of Computer Science, College of William & Mary, March 14, 2005.
121. "High-Performance Computing for Large-Scale Graph Problems and Computational Biology," presented at the Department of Electrical and Computer Engineering, University of Delaware, February 25, 2005.
122. "Life Science Applications," IBM / DARPA High Productivity Computing Systems (HPCS) Project Meeting, Austin, TX, February 8, 2005.
123. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Department of Electrical and Computer Engineering, Drexel University, January 21, 2005.
124. "An Implementation of the DARPA HPCS Scalable Synthetic Compact Application #2: Graph Analysis," High Productivity Computing Systems (HPCS) Productivity Meeting, Marina del Rey, CA, January 12, 2005.
125. "Fast, Sparse Graph Algorithms using Symmetric Multiprocessors," Pacific Northwest National Laboratory, December 14, 2004.
126. "The Productive Use of High-End Computing Systems for Applications in Computational Biology," Workshop on Building Scalable Simulations of Complex Socio-Technical Systems, The 5th Los Alamos Computer Science Institute (LACSI) Symposium, Santa Fe, NM, October 12, 2004.
127. "DARPA Scalable Synthetic Compact Application #1: Optimal Pattern Matching," High Productivity Computing Systems (HPCS) Program and Productivity Summit, Fairfax, VA, June 29, 2004.
128. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Thomas Jefferson University Computational Biology Seminar Series, University of Delaware, June 7, 2004.
129. "The Productive Use of High-End Computers," presented at the Advanced Computing Laboratory of Los Alamos National Laboratory, May 27, 2004.
130. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Biomedical Computing Center Colloquium Series, Georgia State University, May 14, 2004.
131. "High-Performance Computational Biology," Panel Moderator, presented at *18th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Santa Fe, NM, April 28, 2004.

132. Panelist, Scalable Synthetic Compact Applications, HPCS Micro and Scalable Benchmarking Technical Meeting, DARPA High Productivity Computing Systems (HPCS) Productivity Team Workshop, USC/ISI, Marina Del Ray, CA, January 15, 2004.

133. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at Computational Biology Seminar Series, Johns Hopkins University, December 23, 2003.

134. "Life Science Application Performance and Benchmarking," presented at the DARPA HPCS /IBM PERCS Phase 2 Project Meeting, IBM T.J. Watson Research Center, Yorktown Heights, NY, September 11, 2003.

135. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at University Visvesvaraya College of Engineering, Bangalore University, India, December 16, 2002.

136. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at PES Institute of Technology, Bangalore, India, December 16, 2002.

137. "Computational Biology and High Performance Computing," Panelist, *The IEEE and ACM Supercomputing Conference 2002 (SC2002)*, Baltimore, MD, November 19, 2002.

138. "High-Performance Computing for Reconstructing Evolutionary Trees from Gene-Order Data," presented at the Department of Computer Science & Engineering, The University of Texas at Arlington, October 11, 2002.

139. "High-Performance Algorithm Engineering and Computational Biology," presented at the DARPA PERCS Project Meeting, IBM T.J. Watson Research Center, Yorktown Heights, NY, July 16, 2002.

140. "High-Performance Computing for Reconstructing Phylogenies from Gene-Order Data," presented at the IDC HPC User Forum, Santa Fe, NM, April 23, 2002.

141. "High-Performance Computing for Reconstructing Phylogenies from Gene-Order Data," presented at the Sun Microsystems HPC Consortium 2001, Denver, CO, November 11, 2001.

142. "A Linear-Time Algorithm for Computing Inversion Distance Between Signed Permutations with an Experimental Study," presented at the Computer Science Department Colloquium of The University of New Mexico, October 16, 2001.

143. "High-Performance Algorithm Engineering for Computational Phylogeny," with Bernard Moret, presented at the UNM Medical School, September 19, 2001.

144. "High-Performance Algorithm Engineering for Gene-Order Phylogenies," presented at the Computer Science Research Institute (CSRI) seminar, Sandia National Laboratories, Albuquerque, NM, March 8, 2001.

145. "Open-Source Parallel Algorithms Library (OPAL): Efficient algorithms for symmetric multiprocessors," presented at the Extreme Linux Developer's Forum (ELDF), Santa Fe, NM, February 22, 2001.

146. "Genome Rearrangements Analysis under Parsimony and other Phylogenetic Algorithms," presented at the Packard Workshop on Large-Scale Phylogenetic Reconstruction, Volcano, HI, December 29, 2000.
147. "Using PRAM Algorithms on a Uniform Memory Access Shared-Memory Architecture," presented at the Advanced Computing Laboratory of Los Alamos National Laboratory, November 2, 2000.
148. "Using PRAM Algorithms on a Uniform Memory Access Shared-Memory Architecture," presented at Yale University, New Haven, CT, October 20, 2000.
149. "Bridging the Gap Between the Theory and Practice of Parallel Computing," presented at the University of New Mexico Chapter of Sigma Xi, Albuquerque, NM, October 18, 2000.
150. "Using PRAM Algorithms on a Uniform Memory Access Shared-Memory Architecture," presented at Sun Microsystems High-End Technical Users Performance Group (SUPerG) meeting, Vancouver, Canada, October 11, 2000.
151. "Using PRAM Algorithms on a Uniform Memory Access Shared-Memory Architecture," presented at Experimental Algorithmics, Seminar No. 00371, Schloss Dagstuhl International Conference and Research Center for Computer Science, Wadern, Germany, September 13, 2000.
152. "Designing High-Performance Algorithms for SMP Clusters," presented at the IBM SP Scientific Computing User Group (SCICOMP2000), San Diego Supercomputer Center, University of California, San Diego, August 15, 2000.
153. "Grid Forum 'Advanced Programming Models' Working Group Progress Report," presented at the Fourth Grid Forum Meeting, Microsoft Corp., Redmond, WA, July 10-12, 2000.
154. "OPAL: Open Source Parallel Algorithm Library for Designing Efficient PRAM-Like Algorithms for Symmetric Multiprocessors," National Center for Genome Resources, Santa Fe, NM, May 22, 2000.
155. "Designing High-Performance Algorithms for SMP Clusters," presented at the IBM Hyper Cluster Computing Workshop, Albuquerque High Performance Computing Center, The University of New Mexico, April 19, 2000.
156. "Grid Forum 'Advanced Programming Models' Working Group Progress Report," presented at the Third Grid Forum Meeting, University of California, San Diego, CA, March 22-24, 2000.
157. "An Improved Randomized Selection Algorithm With an Experimental Study," presented at the Albuquerque High Performance Computing Center, The University of New Mexico, February 4, 2000.
158. "Grid Forum 'Advanced Programming Models' Working Group Progress Report," presented at the Second Grid Forum Meeting, Northwestern University, Chicago, IL, October 19-21, 1999.

159. "Tutorial: Supercomputing in the Alliance," with A.B. Maccabe and R. Pennington, presented at the NSF / Alliance Chautauqua, Boston University, Boston, MA, September 16, 1999.

160. "SuperClusters: A New Approach for High-Performance Computing," presented to the NSF / Alliance Chautauqua, Boston University, Boston, MA, September 14, 1999.

161. "SuperClusters: A New Approach for High-Performance Computing," presented at the NSF / Alliance Chautauqua, University of Kentucky, Lexington, KY, August 24, 1999.

162. "Tutorial: Supercomputing in the Alliance," with A.B. Maccabe and R. Pennington, presented at the NSF / Alliance Chautauqua, University of New Mexico, Albuquerque, NM, August 11, 1999.

163. "SuperClusters: A New Approach for High-Performance Computing," presented at the NSF / Alliance Chautauqua, University of New Mexico, Albuquerque, NM, August 10, 1999.

164. "The Grid Forum Advanced Programming Models Working Group," presented at the Grid Forum Birds-of-a-Feather, Eighth IEEE International Symposium on High Performance Distributed Computing (HPDC-8), Redondo Beach, CA, August 4, 1999.

165. "Grid Forum 'Advanced Programming Models' Working Group Report," presented at the First Grid Forum Workshop, NASA Ames Research Center, Moffett Field, CA, June 17, 1999.

166. "Analysis of the Alliance/UNM Roadrunner Linux Supercluster," presented at the NSF/NCSA Alliance Roadmap '99 Meeting, Chicago, IL, May 12, 1999.

167. "Clusters: The Next Generation," presented at the Albuquerque High Performance Computing Center, The University of New Mexico, March 30, 1999.

168. "Designing High Performance Algorithms for Clusters of SMPs," presented at the Computer Science Department Colloquium of The University of New Mexico, October 22, 1998.

169. "Designing High Performance Algorithms for Clusters of SMPs," presented at the Advanced Computing Laboratory of Los Alamos National Laboratory, April 13, 1998.

170. "Parallel Processing in Academia, National Labs, Industry," Panel member, Rio Grande ACM Meeting, The University of Texas, El Paso, March 27, 1998.

171. "Designing High Performance Algorithms for Clusters of SMPs," presented at New Mexico State University, Las Cruces, NM, March 26, 1998.

172. "Practical Parallel Algorithms for Combinatorial Problems, Data Communication, and Image Processing Applications," presented at Sandia National Laboratories, Albuquerque, NM, May 29, 1997.

173. "Practical Parallel Algorithms for Combinatorial Problems, Data Communication, and Image Processing Applications," presented at the Department of Electrical Engineering and Computer Engineering, The University of New Mexico, April 16, 1997.

174. "Practical Parallel Algorithms for Combinatorial Problems and Data Communication," presented at the Department of Electrical Engineering, The Catholic University of America, November 11, 1996.

175. "Practical Parallel Algorithms for Personalized Communication and Integer Sorting," presented at the Capital Area Theory Seminar and UMIACS Seminar on Algorithms, February 21, 1996.

176. "The World's Fastest Sorting Algorithm, and Other High Performance Computing Results," presented at the Graduate Student Interaction Day (GRID '96), University of Maryland, College Park, MD, April 11, 1996. *Third Place* Award.

177. "Parallel Algorithms for Image Processing," presented at the Graduate Student Interaction Day (GRID '95), University of Maryland, College Park, MD, April 6, 1995.

178. "Scalable and Portable Parallel Algorithms for Image Processing," presented at Supercomputing Research Center, Bowie, MD, March 31, 1995.

VI. PERSONAL DATA

US Citizen
Born May 4, 1969, Bethlehem, PA
Sadie Rose Bader-Gottlieb (daughter) born December 24, 2001.