Daniel A. Reed

Education

		Harding College	August 1975-May 1976
B.S. (*summa cum laude*)	Computer Science	Missouri University of S&T	December 1978
M.S.	Computer Science	Purdue University	May 1980
Ph.D.	Computer Science	Purdue University	May 1983

Leadership Experience

University of Iowa (2012-present)
- Vice President for Research and Economic Development, 2012-present
  - Responsible for campus research oversight, technology transfer and economic development, and campus research and policy centers
    - Led campus ideation/strategy process to diversify research and fund multidisciplinary projects
    - Restructured economic development, engaged state businesses, and accelerated faculty entrepreneurship
    - Launched mobile museum to showcase research to communities across Iowa
    - Engaged Deans in strategic planning and community building
    - Partnered with the Provost to launch campus initiatives
    - CIC partnership on economic impact of research
    - National science and technology policy and global Internet governance
  - Direct report to the President and member of the President's Cabinet
- Chaired Professor of Computational Science and Bioinformatics
- Faculty appointments in Computer Science, Electrical and Computer Engineering, and Medicine

Microsoft (2007-2012)
- Director, Scalable and Multicore Computing, Microsoft, 2007-2009
  - Built and led research and prototyping team to address strategic business problems in cloud and parallel computing, reporting to the Head of Microsoft Research
- Corporate Vice President (corporate officer), Microsoft, 2009-2012
  - Reported to the Head of Microsoft Research and later to the Chief Research and Strategy Officer, who reported to the CEO
  - Led an advanced prototyping team on extreme computing that developed key technologies for Microsoft products
  - Led Microsoft's global technology policy team that engaged heads of state, government ministers, corporate leaders, and other NGO leadership, targeting strategic technical, legal and political issues. Participated in World Economic Forum events, Asia-Pacific and B20 global economic summits

University of North Carolina (2004-2007)
- U.S. President's Information Technology Advisory Committee (PITAC) (2003-2005) and Council of Science and Technology Advisors (PCAST) (2006-2008)
- Director, Renaissance Computing Institute, 2004-2007
  - Founded and built multidisciplinary institute that spanned UNC, Duke and NC State, targeting disaster response, post-genomic biology, arts and humanities
  - Spearheaded statewide research, outreach and economic development activities
  - Built organization to ~100 staff with ~$12M/year state appropriation and campus support, plus federal and private support
- Vice-Chancellor for Information Technology, 2004-2007
  - Merged administrative and academic IT organizations, recruited new senior leadership, built new facilities
  - Launched campus strategic IT plan and administrative enterprise resource planning (ERP)

- ERP process replaced 30 year old, antiquated IT system
  - ~600 staff and $60M annual budget
  - Direct report to the President and member of the President's Cabinet
- Senior Advisor for Strategy and Innovation, 2007
  - Chancellor's advisor on 21st century research university directions

University of Illinois (1996-2001)
- Head, Department of Computer Science, 1996-2001
  - ~2000 students, 40 faculty and 100 staff, top 5 ranked department in the U.S.
  - Helped secure $30M donation (Thomas Siebel) for new building as part of a new, $100M IT quadrangle that also included a building for NCSA
  - Negotiated departmental faculty growth to >60 positions
  - Launched international distance education program with M.S. degrees
- Director, National Computational Science Alliance, 2000-2003
  - ~50 institution national partnership, funded by NSF as part of Partnerships for Advanced Cyberinfrastructure (PACI)
- Director, National Center for Supercomputing Applications (NCSA), 2000-2003
  - ~250 staff and $80M annual budget with direct state support
  - Fortune 500 corporate partnerships for industrial competitiveness
  - Strategic campus partnerships, working in collaboration with Chancellor, Provost and Deans
- Chief Architect, NSF Extensible Terascale Facility TeraGrid, 2001-2003
  - $88M federal initiative with corporate partners IBM, Intel and Qwest and academic partners University of California at San Diego, California Institute of Technology and University of Chicago/Argonne National Laboratory

Academic Experience Summary
- University Computational Science and Bioinformatics Chair, University of Iowa, 2012-present
  - Joint appointments in Computer Science, Electrical and Computing Engineering & Medicine
- Chancellor's Eminent Professor, University of North Carolina at Chapel Hill, 2004-2007
  - Campus-level endowed "super chair," one of three on campus
- Senior Research Scientist, National Center for Supercomputing Applications, 1995-2000
- Edward William and Jane Marr Gutgsell Professor, University of Illinois, 2000-2003
  - Campus level endowed chair, one of ten
- Professor, University of Illinois at Urbana-Champaign, August 1991-2003
- Associate Professor, University of Illinois at Urbana-Champaign, August 1988-August 1991
- Assistant Professor, University of Illinois at Urbana-Champaign, August 1984-August 1988
- Assistant Professor, University of North Carolina at Chapel Hill, August 1983-July 1984
- Post-doctoral Research Associate, Purdue University, May 1983-August 1983

Other Positions
- Visiting Scholar, World Bank Indonesian Second University Development Project, 1990, Jakarta
- Visiting Scientist, IBM T. J. Watson Research Center, July 1990-December 1990

University of Iowa Service
- Strategic Implementation Team, 2016-present
- President's Cabinet, 2012-present
- Iowa Business Council, Deputy, 2012-present
- Belin-Blank Center, Advisory Board (*ex officio*), 2012-present
- College of Education, Advisory Board (*ex officio*), 2015-present
- University of Iowa Research Foundation, vice-chair, 2012-present
- University of Iowa Research Park, Board member, 2012-present
- Iowa City Area Development Group, Board of Directors, 2012-present

University of North Carolina Service
- Chancellor's Cabinet, 2004-2007
- IT Strategic Planning Committee, chair, 2005-2007
- MCNC Advisory Council, 2005-2007
- Southeastern Universities Research Association (SURA) High Performance Computing and Grids Planning Group, 2004-2007
- Bioinformatics Planning Committee, co-chair, 2004-2007
- NIH Roadmap Planning Committee, 2004-2007

University of Illinois Service
- President's Distinguished Speaker, 2000-2003
- Campus Advisory Committee, National Center for Supercomputing Applications, 1998-2000
- Campus Information Technology Planning Committee, 1999
- Executive Committee, Motorola Telecommunications Center, 1997-2003
- Executive Committee, DOE ASCI Center for Simulation of Advanced Rockets, 1997-2000
- Dean of Engineering's Five Year Review Committee, 1999
- College of Engineering Promotion and Tenure Committee, 1998-2000
- Committee on the Future of Information Technology, 2000

Professional Memberships
- Member, Association for Computing Machinery (ACM), 1978-present, Fellow, 2003-present
- Member, IEEE, 1980-present, Fellow, 2004-present
- Member, AAAS, 1986-present, Fellow, 2007-present
- International Federation for Information Processing, Working Group WG10.3, 1993-present

University and National Awards
- Distinguished Service Award, University of Illinois, 2014
- Distinguished Alumnus Award, Missouri University of Science and Technology, 2014
- Honorary Professional Degree, Missouri University of Science and Technology, 2010
- Distinguished Alumnus, School of Science, Purdue University, 2008
- Best Paper Award, Large-Scale System and Application Performance Workshop, 2009
- Best Technical Paper Award, *Supercomputing 2004*

- Xerox Senior Research Award, University of Illinois at Urbana-Champaign, 1991
- University Scholar, University of Illinois at Urbana-Champaign, 1989
- Beckman Associate, Center for Advanced Study, University of Illinois, 1989-1990
- University Scholar, University of Illinois at Urbana-Champaign, 1989
- National Science Foundation, Presidential Young Investigator Award, 1987-1992
- ACM SIGMETRICS Best Award Paper, 1987
- IBM Faculty Development Award, 1984-1985

Major Academic Research Collaborations
- High-performance computing and big data fusion, 2014-present (collaboration planning)
- LEAD and VGrADS Large NSF ITR Awards, 2003-2007
- National Center for Advanced Secure Systems Research (NCASSR), 2003
- NSF TeraGrid, Executive Committee and Chief Architect, 2001-2003
- DOE Lattice Gauge Theory Consortium, 2001-2007
- NSF National Computational Science Alliance, Executive Committee and Director, 1997-2003
- Los Alamos Computer Science Institute, Executive Committee, 1999-2006
- DOE ASCI/ASAP Center for Simulation of Advanced Rockets, Steering Committee, 1998-2000
- DOE ASCI/ASAP Center for Simulation of Dynamic Response of Materials, 1998-2002
- Parallel I/O Grand Challenge Group (Caltech), 1993-1998
- Scalable I/O Initiative, Executive Committee, 1995-1998
- NSF STC Center for Research in Parallel Computation, Affiliate, 1997-2000

Recent Invited Lectures

I speak regularly to diverse audiences (corporate, government, academic and NGOs) on topics spanning research and scholarship, diversity and inclusion, innovation and creativity, and public policy. Recent, representative technical examples from outside Iowa and the University of Iowa include:

- "Big Data Meets HPC," *Korean Supercomputing Conference*, October 2015
- "The Future of Computing Mediated Research and Innovation," *NSF CISE Distinguished Lecture*, March 2015
- "Extreme Scale Lessons," *SIA/NSF/SRC Workshop on Rebooting the IT Revolution*, March 2015
- Addressing Computing Diversity: It's Long Past Time to Get Real," *Richard Tapia Celebration of Diversity in Computing*, February 2015
- "Big Data Meets HPC," *Big Data and Extreme Scale Computing (BDEC),* Barcelona, Spain, January 2015
- "Big Data and Big Compute: Getting Better Acquainted," *International Workshop on Data-Intensive Scalable Computing Systems*, (keynote) November 2014
- "Beowulf Clusters: From Research Curiosity to Exascale," *20 Years of Beowulf*, October 2014
- "Technical Computing: Past, Present and Future," *University of Central Florida*, (invited lecture) February 2014
- "Data Centers, Cloud and PC Optimization," Building Energy Efficient HPC: 4th Annual Energy *Efficient HPC WG Workshop*, November 2013
- "Clusters, Grids and Clouds: A Look from Both Sides," *13th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing*, (invited keynote) Delft, Netherlands, May 2013
- "Clouds from Both Sides Now," *DataCloud 2012*, (invited keynote) November 2012
- "Cloud Computing: Economic and Regulatory Implications", invited panel, *University of Pennsylvania Law School,* Philadelphia, February 2012
- "Technology Future Shock: Society, Policy and Innovation in the Digital World," *University of California at Berkeley,* invited lecture, March 2012
- "Data: A Common Challenge," *International Conference on Research Infrastructure*, Copenhagen, (plenary panel discussion), March 2012
- "Future Shock Now," *Digital Broadcast World*, (opening keynote), Rome, March 2012
- "EU 2050: Europe's Tech Revolution," debate with the Professor Anne Glover, Chief Science Advisor to the European Union President, Brussels, March 2012
- "Technology Policy Roundtable – Shaping Our Future," *Chinese Academy of Science*, (invited lecture), Beijing, April 2012
- "Technology Future Shock: Society, Policy and Innovation in the Digital World," *Global Internet Economy (GIE) Symposium*, (invited lecture), Keio University, Tokyo, April 2012
- "Enabling Global Innovation," *United Nations Commission on Science and Technology for Development*, (plenary panel), Geneva, May 2012
- "Technical Computing: The Challenge of Scale," *Institute for Information Science, Academia Sinica*, Distinguished Lecture, May 2012
- "HPC 2.0: The Challenge of Scale," Distinguished Lecture, Institute for Data and High-Performance Computing, *Georgia Institute of Technology*, May 2012

Recent Public and Professional Service

- Array of Things Consortium, External Advisory Committee, 2015-
- Midfin Systems (IT startup led by members of my former Microsoft team), Advisory Board, 2014-
- Center for Minorities and People with Disabilities in Information Technology, Board of Advisors, 2011-present
- Council on Research Policy and Graduate Education, Executive Committee, APLU, 2014-
- Department of Energy, Advanced Scientific Computing Advisory Committee (ASCAC), 2014-
  - Chair, subcommittee review on exascale computing
  - Committee chair, 2015-
- National Academies, Panel on Review of the Information Technology Laboratory at the National Institute of Standards and Technology, 2015
- National Academies, Committee on Future Directions for NSF Advanced Computing Infrastructure to Support US Science in 2017-2020, 2014-2015

- Council on Competitiveness, HPC Advisory Committee, 2004-2007, 2013-
- Department of Energy, Secretary of Energy Advisory Committee HPC Taskforce, 2013-2014
- SC14, Emerging Technologies Committee, 2013-2014
- ICANN Generic Names Supporting Organization (GNSO) Council, 2013-2015
- SC13, Awards Chair, 2012-2013
- Texas Advanced Computing Center, Strategic Advisory Board, 2013-
- Department of Energy Systems Biology Knowledgebase (KBase) project, Scientific Advisory Committee, 2013-2015
- Department of Energy Exascale Computing Program, advisor, 2012-2013
- NIH Biomedical Computing Research Centers Advisory Committee, 2012-2014
- B20 ICT Innovation Working Group, co-chair, 2012
- International Telecommunications Union, CTO Council, 2010-2012
- IEEE Seymour Cray and Sidney Fernbach Awards Committee, Chair, 2009-2012
- TechAmerica Cloud Commission, Commercial Co-Chair, 2011
- Computing in the Core, Executive Committee, 2011-2012
- Sandia National Laboratory Extreme-Scale Computing Grand Challenge External Advisory Board, 2011-2014
- U.S. Federal Communication Commission, Technical Advisory Group, 2011-2012
- National Archives and Records Administration, ACERA, 2005-2011
- National Academies, Board on Research Data and Information, 2009-2011
- National Academies, Board on Global Science and Technology, 2010-2014
  - Chair, Committee on Global Approaches to Advanced Computing
- Broad Institute, GenomeSpace, Scientific Advisory Board, 2008-2010
- NERSC (National Energy Research Scientific Computing Center) Policy Board of the Lawrence Berkeley National Laboratory, 2001-present, Chair, 2003-
- Los Alamos National Laboratory, Strategic Computing Review Committee, Chair, 2008-

- ***U.S. President's Council of Science and Technology Advisors (PCAST), 2006-2008***
  - ***Co-chair, committee on networking and IT research and development***
- ***U.S. President's Information Technology Advisory Committee (PITAC), 2003-2005***
  - ***Chair, IT and Computational Science Subcommittee, report available at www.nitrd.gov/pitac/reports***

- National Center for Computational Sciences, Oak Ridge National Laboratory, Advisory Committee, 2006-2007
- Defense Science Board, NNSA Strategic Computing Plan Task Force, 2008
- DARPA Exascale Software Study, 2008
- NSF Alan T Waterman Award Selection Committee, 2004-2006
- DOE Tri-laboratory Nuclear Stockpile Stewardship Review, 2004-2007
- Biomedical Informatics Expert Panel, National Institute of Health's National Center for Research Resources, 2004-2007

- Army Research Laboratory Review Panel for Digitization and Communications Science, 2005-2007
- International Conference on Cluster Computing, Advisory Committee 2003-present
- Illinois VentureTECH Advisory Committee, appointed by Illinois Governor Ryan, 2000-2003
- Georgia Institute of Technology, College of Computing Advisory Board, 2000-present
- Steering Committee, SC'XY Conference on High-Performance Computing, 2000-2003, 2007-2011
- Argonne/University of Chicago Computation Institute External Advisory Council, 2000-2005
- Co-chair, Grid Physics Network (GriPhyN) Steering Committee, 2001-present
- Advisory Committee, NSF Computer and Information Science and Engineering (CISE) Directorate, 1997-2000
  - Chair, High-Performance Computing Advisory Subcommittee, 1998-2000

- Electorate Nomination Committee of the Section on Information, Computing, and Communication, AAAS, 2001-2004
- Member-at-Large, Section on Information, Computing, and Communication, AAAS, 2002-2006
- Steering Committee, Linux Cluster Institute, 2002-2003
- Organizing Committee, Department of Homeland Security, Advanced Scientific Computing Requirements Workshop, 2003

- Board of Directors, Computing Research Association (CRA), 1998-2009
  - Chair, 2005-2009, Awards Committee (chair), 1998-1999, Government Affairs Committee 1999-present, (chair) 1999-2001, AAAS Society Representative, 2001-present

- Joint US/Russian Information Technology Exchange, Moscow, September 1999
- Chair, NSF Review Committee, National Center for Atmospheric Research (NCAR), 1999

- Academic Review Committees
  - Department of Computer Science, University of Arizona, 2007 (chair)
  - Department of Computer Science, University of Maryland, 2003
  - College of Computing, Georgia Institute of Technology, 2002
  - Department of Computer Science and Engineering, University of California at San Diego, 1999 (Chair)
  - Department of Computer Science, Virginia Polytechnic Institute and State University, 1998

- Steering Committee, Illinois Information Technology Workforce Conference, 1998
- Executive Committee, NSF National Computational Science Alliance, 1996-2003
- Organizing Committee, Department of Energy Data and Visualization Corridor Planning Meetings, 1998-1999
- Secretary/Treasurer, ACM SIGMETRICS Special Interest Group on Performance Measurement and Modeling, 1993-1995

U.S. Congressional Testimony
- U.S. House of Representatives Science and Technology Committee and Subcommittees
  - July 2003, May 2004, July 2008, September 2011, May 2013
- U.S. Senate Energy Resources Subcommittee, June 2004
- U.S. Senate Commerce Committee, April 2008

Research Conference Program Committees
All major conferences in high-performance computing (typically 3-5 each year until my move to Microsoft). Selected samples shown. I now serve on selected committees that I consider of importance, prioritizing the responsibilities of my current position.

- IEEE International Symposium on Cluster Computing and the Grid, 2001
- Program committee, Commercial Applications for High-Performance Computing, 2001
- Technical program chair, SC02, 2000-2002
- General chair, Clusters 2002
- Program committee, Performance 2002
- Program committee, HPDC-11: The International Symposium on Grid Computing, 2002
- Program committee, Second and Third Workshops on Advanced Collaborative Environments, 2002-2003
- Program Committee, Second European Across Grids Conference, 2004
- 17th International Conference on Parallel and Distributed Computing, 2004
- International Workshop on Software Engineering for High Performance Computing System Applications, 2004
- Vice-chair, Software Tools, International Conference on Parallel Processing, 2005

- Vice-chair, Software, International Parallel and Distributed Processing Symposium (IPDPS), 2004
- Program Committee, IFIP International Conference on Network and Parallel Computing (NPC 2004)
- Program Committee, The European Grid Conference EGC2005, 2004
- Program Committee, International Workshop on Software Engineering for High Performance Computing System Applications, 2004, 2005
- Steering Committee and Program Co-chair, IFIP International Conference on Network and Parallel Computing, 2005
- SC06, Technical papers, co-chair, SC06
- General Chair, ACM SIGPLAN Symposium on Principles & Practice of Parallel Programming, 2009
- Cluster 'XY, Steering and Advisory Committees, 2007-present
- High-Performance Infrastructure for Scalable Tools, Program Committee, 2011, 2012
- Network and Parallel Computing Conference Steering Committee, 2010-present
- International Workshop on Data Intensive Computing in the Cloud, Steering Committee, 2011
- EduPar-12: Second NSF/TCPP Workshop on Parallel and Distributed Computing Education, 2012
- 6th IEEE International Conference on Cloud Computing Technology and Science, Program Committee, 2014, 2015
- SC14, Emerging Technologies, 2014

Editorial Boards
- *Parallel Computing,* North American Editor, 2003-2005; Editor-in-chief, 2005-2009
- *International Journal of High-Speed Computing*, 1989-1997
- *Concurrency Practice and Experience*, 1989-present
- *IEEE Transactions on Software Engineering*, 1989-1991
- *IEEE Transactions on Parallel and Distributed Systems*, 1991-1996

Thesis Supervision
Supervised completion of 20 M.S. theses and 19 Ph.D. dissertations. The Renaissance Computing Institute (RENCI) included graduate students from Duke, North Carolina State, and UNC Chapel Hill.

Ph.D Students (Initial Positions)
- Alex Y.-W. Kwok, 1987 (SUN Microsystems)
- Chong-Kwon Kim, 1987 (Seoul National University)
- Alexander J. Spry, 1988 (Loral)
- Wittaya Watcharawittayakul, 1988
- Dirk C. Grunwald, 1989 (University of Colorado)
- Allen D. Malony, 1990 (University of Oregon)
- Bobby A. A. Nazief, 1991 (University of Indonesia)
- David W. Jensen, 1993 (Pacific Sierra Research)
- Brian K. Totty, 1994 (Inktomi)
- Tara M. Madhyastha, 1997 (UC-Santa Cruz)
- Celso L. Mendes, 1997 (INPE/DPI, Brazil)
- Christopher L. Elford, 1998 (Intel)
- Thomas Kwan, 1998 (McKinsey and Associates)
- Huseyin Simitci, 2000 (Seagate)
- Nancy Tran, 2001 (NCSA)
- Mario Medina, May 2007 (Chile)
- Charng-da Lu, July 2005
- Emma Buneci, April 2008 (Amazon)
- Todd Gamblin, June 2009 (Lawrence Livermore National Laboratory)

Post-doctoral Associates (Initial Positions)
- Jhy-chun Wang, January 1994-January 1995 (IBM)
- Phyllis Crandall, August 1994-August 1995 (Los Alamos National Laboratory)
- Evgenia Esmirni, August 1995-July 199 (College of William and Mary)
- Luis DeRose, May 1996-May 1999 (IBM T. J. Watson Research Center)
- Randy Ribler, May 1996-May 1998 (Lynchburg College)
- Jeffrey S. Vetter, January 1998-May 1999 (Lawrence Livermore National Laboratory)
- Mario Pantano, April 1998-March 1999 (Anderson Consulting (Italy))
- Celso Mendes, January 2000-2003

Teaching Awards (University of Illinois)
Fall 1985, Fall 1992, Fall 1993, Spring 1994, Fall 1994, Spring 1995 (last taught, Spring 1996)
Did not teach at the University of North Carolina due to leadership roles
Last taught Fall 2013 at University of Iowa

Patents and Patent Applications
- D. A. Reed, S. Sinha, M. E. Fathalla, C. J. Williams, B. L. Hays, "Scalable and Flexible Control System Having Symmetrical Control Units," March 19, 2010
- A. A. Hasan, B. R. Anders and D. A. Reed, "Cellular Service with Improved Service Availability," March 26, 2010
- A. A. Hasan, D. A. Reed, P. W. Garnett, B. R. Anders, "White Spaces Utilization," June 18, 2012
- C. L. Belady, J. R. Larus, D. A. Reed, C. H. Borgs, J. T. Chayes, I. Lobel, I. Menache, H. Nazerzadeh, N. Jain "Data Center System that Accommodates Episodic Computation," October 28, 2010
- J. Aasheim, D. Fortier, M. Hall, A. Johar, D. Reed, "Power and Local Management Based on Contextual Information," June 17, 2011
- A. A. Hassan, D. A. Reed, M. K. Desai, B. R. Anders, Jr, "Direct Connection with Side Channel Control," December 14, 2010
- A. Hassan, B. R. Anders, D. A. Reed, P. W. Garnett, "Location Determination for White Space Utilization," December 8, 2011
- A. Hassan, D. A. Reed, T. J. Griffin, "Cognitive Use of Multiple Regulatory Domains," December 9, 2010
- A. A. Hassan, D. A. Reed, P. W. Garnett, B. R. Anders, Frequency Hopping For Dynamic Spectrum Access, May 14, 2012
- A. A. Hassan, D. A. Reed, P. W. Garnett, "Control Coding for Noncontiguous Channel Aggregation," June 19, 2012
- A. A. Hassan, B. R. Anders, Jr., D. A. Reed, P. W. Garnett, "Location Determination for White Spaces Utilization," June 8, 2011
- S. Batchiche, J. R. Cheatham, III, P. H. Dietz, M. G. Dyor, P. A. Eckhoff, A. Gupta, K. P. Hinckley, R. A. Hyde, M. Y. Ishikawa, J. T. Kare, C. J. Mundie, N. P. Myhrvold, A. G. Nowatzyk, R. C. Petroski, D. Reed, C. T. Tegreene, C. Whitmer, L. L. Wood, Jr., V. Y.H. Wood, "Multimode Stylus," March 14, 2013
- S. Bathiche, J. R. Cheatham, III, P. H. Dietz, M. G. Dyor, P. A. Eckhoff, A. Gupta, JR., K. P. Hinckley, III, R. A. Hyde, M. Y. Ishikawa, J. T. Kare, C. J. Mundie, N. P. Myhrvold, A. G. Nowatzyk, R. C. Petroski, D. A. Reed, C.T. Tegreene, C. Whitmer, V. Y.H. Wood, L. L. Wood, JR, "Systems and Methods for Parallax Computation," March 15, 2013
- M. Davis, M. Dyor, W. Gates, X. Huang, R. Hyde, E. Jung, J. Kare, R. Levien, R. Lord, R. Lord, Q. Lu, M. Malamud, N. Myhrvold, S. Nadella, D. Reed, H. Shum, C. Tegreene and L. Wood, Computational Systems and Methods for Preparing Data for Double-Encryption and Anonymous Storage, March 14, 2013
- M. Davis, M. Dyor, W. Gates, X. Huang, R. Hyde, E. Jung, J. Kare, R. Levien, R. Lord, R. Lord, Q. Lu, M. Malamud, N. Myhrvold, S. Nadella, D. Reed, H. Shum, C. Tegreene and L. Wood, Computational Systems and Methods for Preparing Data for Anonymized Storage of Double-Encrypted Data, March 14, 2013

- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K.Y. Jung, J. T. Kare, R. A. Levien, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., "Context Sensitive Query Enrichment," October 31, 2011
- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K. Y. Jung, J.T. Kare, R. A. Levien, R.bT. Lord, R. W. Lord, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., Computational Systems and Methods for Regulating Information Flow During Interactions," December 29, 2011
- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K.Y. Jung, J. T. Kare, R. A. Levien, R. T. Lord, R. W. Lord, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., "Computational Systems and Methods for Identifying a Communications Partner," December 27, 2011
- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K.Y. Jung, R. A. Levien, R. T. Lord, R. W. Lord, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., "Computational Systems and Methods for Linking Users of Devices," September 9, 2011
- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K.Y. Jung, R. A. Levien, R. T. Lord, R. W. Lord, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., "Computational Systems and Methods for Disambiguating Search Terms Corresponding to Network Members," September 30, 2011
- M. E. Davis, M. G. Dyor, W. Gates, X. Huang, R. A. Hyde, E. K.Y. Jung, R. A. Levien, R. T. Lord, R. W. Lord, Q. Lu, M. A. Malamud, N. P. Myhrvold, S. Nadella, D. Reed, H. Shum, C. T. Tegreene, L. L. Wood, JR., "Computational Systems and Methods for Verifying Personal Information During Transactions," December 30, 2011

Research Publications

Books Authored
- D. A. Reed and R. M. Fujimoto, <u>Multicomputer Networks: Message-Based Parallel Processing</u>, MIT Press, November 1987, 380 pages.

Books Edited
- <u>Sixth SIAM Conference on Parallel Processing for Scientific Computing</u>, Richard F. Sincovec, D. E. Keyes, M. R. Leuze, L. R. Petzold, and D. A. Reed (eds.), *SIAM*, Philadelphia, PA, 1993.

- <u>Debugging and Performance Tuning for Parallel Computing Systems</u>, *IEEE Computer Society Press*, M. L. Simmons, A. H. Hayes, D. A. Reed, and J. Brown (eds.), Los Alamitos, CA, 1996.

- <u>Scalable Input/Output: Achieving System Balance</u>, *MIT Press*, D. A. Reed (ed.), Cambridge, MA, 2003

Book Chapters
- D. A. Reed, ``A Simulation Study of Multimicrocomputer Networks," in <u>Advanced Computer Architecture: Tutorial</u>, Dharma P. Agrawal (ed.), *IEEE Computer Society Press*, 1986.

- D. C. Grunwald and D. A. Reed, ``Benchmarking Hypercube Hardware and Software," in <u>Hypercube Multiprocessors 1987</u>, *Society for Industrial and Applied Mathematics*, Michael T. Heath (ed.), Knoxville, TN, September 1987, pp. 169-177.

- D. A. Reed and A. D. Malony, ``Visualizing Parallel Computer System Performance," in <u>Instrumentation for Future Parallel Systems</u>, Margaret Simmons, Rebecca Koskela, and Ingrid Bucher (eds). *Addison-Wesley*, 1989, pages 59-90.

- D. A. Reed, "Instrumenting Distributed Memory Parallel Systems: A Report," in <u>Instrumentation for Future Parallel Computing Systems</u>, Margaret Simmons, Rebecca Koskela, and Ingrid Bucher (eds), *Addison-Wesley*, 1989, pages 239-250.

- A. D. Malony, D. A. Reed, and D. C. Rudolph, "Integrating Performance Data Collection, Analysis, and Visualization," in <u>Parallel Computer Systems: Performance Instrumentation and Visualization</u>, Margaret Simmons, Rebecca Koskela, and Ingrid Bucher (eds), *Addison-Wesley*, 1990, pages 73-97.

- D. A. Reed, "Performance Instrumentation Techniques for Parallel Systems," in <u>Models and Techniques for Performance Evaluation of Computer and Communications Systems</u>, L. Donatiello and R. Nelson (eds*), Springer-Verlag Lecture Notes in Computer Science*, 1993, pp. 463-490.

- T. M. Madhyastha and D. A. Reed, "A Framework for Auditory Display Design". in <u>Audification: Proceedings of the International Conference on Auditory Display</u>, Gregory Kramer (ed.), *Addison-Wesley*, Vol. XVIII, Santa Fe Institute, Studies in the Sciences of Complexity, November, 1994, pp. 267-289.

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Research Funding
1. "EAGER: Resilient, Energy Efficient HPC System Configuration, National Science Foundation, $298,828, 2012-2015

2. "Mobile Devices, Sensors and Big Data," Carver Charitable Trust, $565,540 (joint with Octav Chipara and Alberto Segre)

3. "TeraGrid Grid Infrastructure Group (GIG), National Science Foundation, $1,493,333, 2004-2009

4. " Cyberinfrastructure in Support of Research: A New Imperative," National Science Foundation, ~$1,200,000, 2005-2008

5. "Carolina Center for Exploratory Genetic Analysis," National Institutes of Health, $1,682,665, 2004-2006 (joint with Terry Magnuson)

6. "Linked Environments for Atmospheric Discovery," National Science Foundation, Large Information Technology Research (ITR), 2003-2007, Kelvin Droegemeier (PI), $11,250,000 (with multiple institutions)

7. "Virtual Grid Application Development Software (VGrADS)," National Science Foundation, Large Information Technology Research (ITR), 2003-2007, Ken Kennedy (PI), $8,250,000 (with multiple institutions)

8. "National Center for Advanced Secure Systems Research (NCASSR)," Office of Naval Research, $5,600,000, 2003

9. "An Extensible Terascale Facility: Cyberinfrastructure for 21st Century Science and Engineering," National Science Foundation, 9/1/02-8/31/04, $35,000,000 (with four partner institutions)

10. "ITR: Intelligent High-Performance Computing on Toys," National Science Foundation, 9/6/02-8/31/05, $409,503

11. "NEESgrid: A Distributed Virtual Laboratory for Advanced Earthquake Experimentation and Simulation," National Science Foundation, 8/1/01-9/30/04, $10,000,000 (*Senior project advisor*)

12. "The TeraGrid: Cyberinfrastructure for 21st Century Science and Engineering," National Science Foundation, 9/1/01-8/31/04, $26,500,000

13. "National Computational Infrastructure for Lattice Gauge Theory," Department of Energy, 8/1/01-7/31/04, $374,295

14. "High-End Computing System Performance Science and Engineering," Department of Energy, 8/1/01-7/31/04, $975,000

15. "National Computational Science Alliance," National Science Foundation PACI Solicitation, 10/1/97-9/30/02, $161,000,000

16. "CADRE: A National Facility for High-Performance I/O Characterization and Optimization," National Science Foundation, 7/15/99-7/30/04, $1,200,000

17. "A Uniform Instrumentation, Event and Adaptation Framework for Network Aware Middleware and Advanced Network Applications," Department of Energy, 7/15/99-7/14/02, $750,000

18. "Wide Area Adaptive I/O Systems for Data and Visualization Corridors, " Lawrence Livermore National Laboratory, 8/31/99-8/30/02, $1,200,000

19. "Intelligent Information Spaces: A Testbed to Explore and Evaluate Intelligent Devices and Augmented Realities, " National Science Foundation, 7/31/99-7/30/04, $2,000,000 (equipment)

20. "Fundamental Methods for Adaptation in Grid Application and Development Environments," National Science Foundation, 9/1/99-12/31/04, co-PI with K. Kennedy and ten other investigators, $6,200,000 (Illinois share $500,000)

21. "ASCI/ASAP Center for Simulation of Dynamic Response of Materials," Department of Energy, co-I with D. Merion, Caltech, $20,000,000, 8/1/97-7/31/02 (Illinois share $625,000)

22. "ASCI/ASAP Center for Simulation of Advanced Rockets," Department of Energy, co-I with M. Heath and other investigators, $20,000,000, 8/1/97-7/31/02

23. "An Integrated, Language-Directed Performance Prediction, Measurement and Analysis Environment," Defense Advanced Research Projects Agency, 9/1/97-8/31/00, $1,518,178

24. "Virtual Environments for Direct Software Manipulation," Defense Advanced Research Projects Agency, 9/1/96-8/31/99, $1,118,018

25. "Real-time Application Performance Steering and Adaptive Control," Defense Advanced Research Projects Agency, 9/1/96-8/31/99, $633,533

26. "Collaboration Support for Complex Systems," Defense Advanced Research Projects Agency, 9/1/96-8/31/99, $1,307,074 (co-PI with S. Kaplan)

27. "Broadband Networks and Multimedia," National Science Foundation, Institutional Infrastructure, 6/1/94-5/31/99, $1,707,262 (co-PI with R. H. Campbell and A. A. Chien)

28. "Scalable I/O Initiative," DARPA, DOE, NSF, and NASA, 7/1/95-6/30/98, $771,000 (Illinois share of $12M)

29. "Parallel I/O Methodologies," National Science Foundation, Grand Challenge Project, 9/1/93-8/30/98, $385,000 (Illinois share) joint with Caltech

30. "Multicomputer Resource Management Algorithms," National Science Foundation, 7/15/93-6/30/96, $444,363 (co-PI with A. A. Chien)

31. "Multicomputer Resource Management Algorithms," Advanced Research Projects Agency, 6/1/93-5/31/96, $748,870 (co-PI with A. A. Chien)

32. "High-Performance Input/Output Systems," National Aeronautics and Space Administration, 8/1/93-8/31/96, $150,000

33. "High Performance Parallel Input/Output," National Aeronautics and Space Administration, 7/1/93-5/31/98, $132,000 (two fellowships)

34. "Workshop on Instrumentation for Parallel Computer Systems: A Dialog Between Users and Developers," National Science Foundation, 6/30/94-6/30/95 $15,006

35. "Pablo Performance Environment," Intel Supercomputer Systems Division, 9/1/92-12/31/94, $200,000 plus Paragon XP/S donation

36. "Virtual Reality: Understanding Massively Parallel Systems," National Science Foundation, 10/1/92-3/31/96, $500,000

37. "Workshop: Software Performance Tools for Parallel Computer Systems," National Science Foundation, 7/15/91-6/30/92, $12,060

38. "Scalable, Open Performance Environments for Parallel Systems," Defense Advanced Research Projects Agency, 5/21/91-6/30/96, $1,459,541

39. "Graduate Research Fellowship" Advanced Research Projects Agency, 9/21/90-8/20/92, $40,956

40. "8CE Multiprocessor Joint Study," International Business Machines, Shared Memory Experimental Machine (8CE), 6/30/89-5/31/92

41. "Visualizing Parallel Computer Performance," Digital Equipment Corporation, 8/21/89-8/20/92, $112,500 (equipment)

42. "Parallel Performance Environments," Apple Computer, 8/21/89-8/20/94, $15,000 plus equipment

43. "Performance Environment Hardware," Intel Supercomputer Systems Division, 11/1/89-5/31/92, $63,514 (equipment)

44. "Tapestry: Unifying Shared and Distributed Memory Parallel Systems," National Science Foundation, 8/21/88-12/31/93, $2,442,447 (CISE Institutional Infrastructure grant with R. H. Campbell)

45. "Tapestry REU Supplement," National Science Foundation, 7/1/91-12/31/92, $9,600

46. "Picasso: A Vehicle for Multicomputer Systems Research," National Science Foundation, 8/21/88-8/20/90, $67,523

47. "Presidential Young Investigator Award," National Science Foundation, $125,000 with industrial matching funds to $500,000, 6/1/87-5/30/92.

48. "Metropolitan Networks," AT&T Information Systems, 8/15/85-10/31/90, $763,823 (co-PI with R. H. Campbell and M. Faiman).

49. "Supercomputer Environments," Air Force Office of Scientific Research, University Research Initiative, $2,509,569, 8/21/86-8/20/91, (co-I with D. J. Kuck *et al*)

50. "Illinois Computing Laboratory for Aerospace Systems and Science," National Aeronautics and Space Administration, $3,656,300, 8/31/85-8/30/98 (with the Department of Computer Science)

51. "Multiple Microprocessor Computer System," National Science Foundation, $80,000, 7/1/86-6/30/87 (equipment grant) with $40,000 additional matching funds

52. "Performance Directed Design of Multimicrocomputer Systems," National Science Foundation, $55,825, 9/1/84-6/30/87

53. "Research in the Design and Application of Parallel Processors," National Aeronautics and Space Administration, NASA NAS-526405, $497,298, 12/12/80-4/12/86 (assumed after the death of D. Slotnick)

54. "Design of High-Performance Reconfigurable Systems," National Aeronautics and Space Administration, NASA NAG-5-377, $158,544, 10/15/83-8/31/87 (assumed after the death of D. Slotnick)

55. "Analysis of Adaptive Algorithms for an Integrated Communication Network," National Aeronautics and Space Administration, NASA NAG-1-595, $90,359, 6/1/85-9/31/87

56. "Parallel Simulation: A Technique for Efficiently Simulating Complex Systems," Ira Kay Memorial Research Grant in Computer Simulation, $6000, 4/1/84-4/1/85

57. "Faculty Development Award," International Business Machines, $60,000, 9/1/84-9/1/86