Peter A. Dinda

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July, 2026

Department of Computer Science
Department of Electrical and Computer Engineering
Northwestern University
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Research Interests

Experimental computer systems, broadly construed, presently including: virtualization, empathic systems, distributed and parallel systems, languages and programming systems for parallel and distributed computing, and performance analysis.

Education

Carnegie Mellon University
Ph.D. in Computer Science *May, 2000*
Advisor: David R. O'Hallaron
Committee: David O'Hallaron, Thomas Gross, Peter Steenkiste, Jaspal Subhlok, David Bakken
Thesis: *Resource Signal Prediction and its Application to Real-time Scheduling Advisors*
M.S. in Computer Science *May, 1996*

University of Wisconsin — Madison
B.S. in Electrical and Computer Engineering *May, 1993*
Second major in Computer Science, minor in History of Science
Dean's list, all semesters

Employment

Northwestern University, Department of Computer Science *Presently*
Professor of Computer Science and Engineering
Courtesy appointment in Electrical and Computer Engineering
Affiliation with the Center for Ultra-scale Computing
Sabbatical, September, 2023–March, 2024

Northwestern University, Department of Electrical Engineering and Computer Science *July 2013 to August 2018*
Professor of Electrical Engineering and Computer Science
Affiliation with the Center for Ultra-scale Computing

University of Florida, Department of Electrical and Computer Engineering *September 2017 to March 2018*
Sabbatical

Northwestern University, Department of Electrical Engineering and Computer Science *September 2011 to June 2013*
Professor of Electrical Engineering and Computer Science
Head of Computer Engineering and Systems Division (17 faculty)
Affiliation with the Northwestern Institute on Complex Systems
Affiliation with the Center for Ultra-scale Computing

University of New Mexico, Department of Computer Science *June 2011 to March 2012*
Sabbatical

Northwestern University, Department of Electrical Engineering and Computer Science *September 2006 to August 2011*
Associate Professor (tenured) of Electrical Engineering and Computer Science
Head of Computer Engineering and Systems Division (17 faculty)
Affiliation with the Northwestern Institute on Complex Systems
Affiliation with the Center for Ultra-scale Computing

Northwestern University, Department of Electrical Engineering and Computer Science *September 2005 to August 2006*
Assistant Professor of Electrical Engineering and Computer Science
Lisa Wissner-Slivka and Benjamin Slivka Junior Professor of Computer Science
Affiliation with the Northwestern Institute on Complex Systems

Northwestern University, Department of Computer Science *September 2000 to August 2005*
Assistant Professor of Computer Science
Lisa Wissner-Slivka and Benjamin Slivka Junior Professor of Computer Science
Courtesy appointment in Electrical and Computer Engineering
Affiliation with the Northwestern Institute on Complex Systems

Consultant, Dizpersion Corporation and Votes Plus *August 2001 to September 2002*
Under Non-disclosure agreement.

Consultant, TimeLine Vista Corporation *1996 to 1997*
Integration of MacFS filesystem (see below) into MX-2424 professional digital audio recorder

Consultant (self-employed) *1995 to present*
Expert witness (virtualization, operating systems, mobile, parallel systems, HPC, and other areas)
Technical expert
Specialized software and hardware development
Other services

IBM Austin, Advanced Workstations Division *June 1991 to December 1991*
Timing analysis of Rios Single Chip and PowerPC 601 floating point; Hardware compiler transform prototyping; Design management software development

IBM Rochester, Storage Products Division *May 1990 to September 1990*
Vision system programming; Robot control hardware debugging; SPC system for shop floor terminals

Madison Academic Computing Center *January 1989 to August 1993*
Microcomputing consultant

Blue Moon Photography (self-employed) *1987 to 1990*
Weddings, environmental portraiture, and custom black and white printing

Teaching

My Ph.D. Students, Northwestern University (Computer Science unless noted, oldest to youngest)

- Dong Lu, June 2005
  - Topic: Components of a Scalable Distributed Relational Information Service
  - Now Vice President, Equities Strategies, Barclays Capital
- Ananth Sundararaj, December 2006
  - Topic: Automatic, Run-time, and Dynamic Adaptation of Distributed Applications Executing In Virtual Environments
  - Now Senior Research Engineer, Microsoft
- Bin Lin, July 2007
  - Topic: Human-directed Optimization
  - Now Senior Research Engineer, Apple
- Ashish Gupta, March 2008
  - Black Box Methods for Inferring Parallel Applications' Properties in Distributed Envronments
  - Now Senior Software Engineer, Google
- John (Jack) Lange, August 2010
  - Topic: Symbiotic Virtualization
  - Symantec Research Labs Fellowship
  - Now Associate Professor, Department of Computer Science, University of Pittsburgh
- Stephen Tarzia, July 2011 (ECE Ph.D.)
  - Topic: Acoustic Sensing of Location and User Presence on Mobile Computers
  - John N. Nicholson Fellowship
  - Now Assistant Chair, Department of EECS, Northwestern University
- Lei Xia, June 2013
  - Topic: ConCORD: Tracking and Exploiting Cross-Node Memory Content Redundancy in Large-Scale Parallel Systems
  - Now Member of Technical Staff, VMware
- Chang Bae, July 2013
  - Topic: Dynamic Adaptive Resource Management in a Virtualized NUMA Multicore System for Optimizing Power, Energy, and Performance

  - Now Senior Software Engineer, Intel
- Kyle Hale, August 2016
  - Topic: Hybrid Runtime Systems
  - Winner of Best CS Dissertation Award, Northwestern EECS
  - Now Assistant Professor, Department of Computer Science, Illinois Institute of Technology
- Maciej Swiech, September 2016
  - Topic: Controlling Green Users for a Happier Cloud
  - Now at iBotta (Startup)
- Brian Suchy, June 2022
  - Topic: Revisiting Software-based Memory Management
  - Now at Google Research
- Michael Wilkins, December 2023 (co-advised with Nikos Hardavellas, ECE Ph.D.)
  - Topic: On Transparent Optimizations for Communication in Highly-Parallel Systems
  - Now at Cronelis Networks / Argonne National Labs
- Christopher Kraemer (co-advised with Josiah Hester through 2022, now at Georgia Tech)
  - 7th year
- Nick Wanninger
  - 5th year
- Kirill Nagaitsev
  - 4th year
  - Department of Energy Computional Science Graduate Fellowship (DOE CSGF)
- Michael Polinski
  - 4th year
- David Krasowska
  - 4th year
  - Department of Energy Computional Science Graduate Fellowship (DOE CSGF)
- Karl Hallsby
  - 3rd year
- Peizhi Liu
  - 3rd year
  - National Science Foundation Graduate Research Fellowship (NSF GRFP)
- Friedrich Doku
  - 2nd year
- Alex Butler
  - 2nd year
  - GEM Ph.D. Fellowship

My Visitors, Northwestern University

- Lucian Mocan, 2026
  - Visiting Predoctoral scholar from University of Strasbourg, France
- Ioan Raicu, 2016–2017

  - Sabbatical visitor from Illinois Institute of Technology
- Huaqian Cai, 2014
  - Visiting predoctoral scholar from Peking University (China)
  - Focus while at Northestern: empathic systems
- Yuan Tang, 2008–2010
  - Visiting predoctoral scholar from UESTC (China)
  - Focus while at Northwestern: virtual networks

Committee Memberships (graduated students), Northwestern University

- Yian Su, June, 2026 (Ph.D. in CS)
  - Topic: Automating Parallel Execution Plan Selection and Tuning
- Rashna Kumar, March, 2026 (Ph.D. in CS)
  - Topic: Consolidation and Consequence in Web Delivery Infrastructure
- Zheng Yu, March, 2026 (Ph.D. in CS)
  - Topic: Toward Practical Vulnerability Repair
- Sen Lin, December, 2025 (Ph.D. in CS)
  - Topic: Cross-Layer Network Optimization Targeting End-users
- Panitan Wongse-Ammat, May, 2025 (Ph.D. in CS)
  - Topic: Reconfigurable Address Translation
- Mohammad Kavousi, January, 2025 (Ph.D. in CS)
  - Topic: Semantics-Assisted Security for Emerging Cloud Native Environments
- Enrico Deiana, November, 2023 (Ph.D. in CS)
  - Topic: Generating Thread-Level Parallelism in Nondeterministic Programs
- Zhenpeng Lin, August, 2023 (Ph.D. in CS)
  - Topic: Towards Understanding and Reducing Exploitability of Linux Kernel Bugs
- Johes Bater, July, 2020 (Ph.D. in CS)
  - Topic: Building a Private Data Federation: Security and Privacy Guarantees for Distributed Analytics
  - Now a postdoc at Duke
- Emirhan Poyraz, July, 2020 (Ph.D. in CE)
  - Topic: User Experience Aware System Optimizations for Mobile Systems
  - Now at Uber
- Marc Warrior, June, 2019 (Ph.D. in CS)
  - Topic: Understanding and Improving Content Distribution Through Expansive Network Measurements
  - Now at Truss Holdings
- Uri Klarman, February, 2019 (Ph.D. in CS)
  - Topic: Unchaining the Blockchain Network Layer
  - Now CEO, bloXroute Labs
- Zach Bischoff, December 2016 (Ph.D. in CS)

  - Topic: Characterizing Broadband Services in a Broader Context
  - Now postdoctoral fellow at IIJ Innovation Institute, Japan
- John Rula, October 2016 (Ph.D. in CS)
  - Topic: Adopting a Gateway Centric View for Cellular Network Content Delivery
  - Now at Akaami
- Marcel Flores, May 2016 (Ph.D. in CS)
  - Topic: Improving Existing Protocols by Enabling Added Communication
  - Now at Verizon Digital Media Services (Research)
- Matt Schuchhardt, August 2015 (Ph.D. in CE)
  - Topic: User-aware System Design and Optimization
  - Now at 4C
- James Swaine, April 2013 (Ph.D. in CS)
  - Topic: Incremental Parallelization of Existing Sequential Runtime Systems
  - Now at BrainTree
- John Otto, September 2013 (Ph.D. in CS)
  - Topic: The Changing Face of Content Delivery: Implications for Clients, Content Providers and the Network at Large
  - Now at Google
- Ben Scholbrock, July 2013 (Ph.D. in ECE)
  - Topic: User-Centric Computer System Analysis
  - Now at Intel
- Ionut Trestian, July 2012 (Ph.D. in CS)
  - Topic: An Evaluation of Human Mobility with Applications in the Design and Functioning of Networked Systems
  - Now Software Development Engineer, Amazon
- Amit Mondal, June 2010 (Ph.D. in CS)
  - Topic: Transport and Application Layer Approaches to Improve End-to-end Performance in the Internet
  - Now Senior Software Engineer, Google
- Alex Shye, June 2010 (Ph.D. in ECE)
  - Topic: The End User in Computer Architecture and Systems Research
  - Now Founder, SoulMix.com
- David Choffnes, February 2010 (Ph.D. in CS)
  - Topic: Service-Level Network Event Detection from Edge Systems
  - Now Assistant Professor, College of Computer and Information Science, Northeastern University
- Zhichun Li, September 2009 (Ph.D. in CS)
  - Topic: Router-based Anomaly/Intrusion Detection and Mitigation
  - Now Research Staff Member, NEC Research Labs
- Yao Zhao, December 2008 (Ph.D. in CS)
  - Topic: Internet Networking and Application Troubleshooting
  - Now Senior Software Engineer, Google

- Lei Yang, June 2008 (Ph.D. in ECE)
  - Topic: On-line Data Memory Compression for Embedded Systems
  - Now Senior Software Engineer, Google
- Stefan Birrer, December 2007 (Ph.D. in CS)
  - Topic: Addressing the Limitations of Tree-based Approaches to High-Bandwidth Streaming Multicast
  - Now Principal, SempiTech Inc.
- Arindam Mallik, December 2007 (Ph.D. in ECE)
  - Topic: Holistic Computer Architectures based on Application User, and Process Characteristics
  - Now Research Scientist, IMEC, Belgium
- Pinku Surana, February 2006 (Ph.D. in CS)
  - Topic: Meta-compilation of Language Abstractions
  - Now Independent Consultant
- Aaron Khoo, April 2003 (Ph.D. in CS)
  - Topic: Implementing Efficient Joint Beliefs on Multi-Robot Teams
  - Now Director of Engineering, 9SLIDES

Masters Committees: Lei Yang, Ai-Hsin Liu, Jack Cosgrove, J. Scott Miller, James Swaine, Tim Zwiebel, Andrew Gocke, Jaime Espinosa, Shiva Rao, Saurabh Kadekodi. Akhil Guliani, Adel Lahlou, Matt George, Xiaoyang Wang, Will Ehrich, John Albers, Michael Leonard, Yian Su, Xu Huang, Wenyi Wang, Zhen Huang, Aaron Nelson, Siyuan Chai, Kevin Mendoza Tudares, Drew Kersnar, Hanming Wang, Jiaxiang Li, Yangzhou Wang, Jasper Jiang, Griffin Dube, Bangyen Pham, Peizhi Liu, Qinze Jiang, Justin Dong, Yao (Astra) Xiao, Zhenhao Zhu, Nikola Maruszewski, Conor Kotwasinski, Liam Strand

Advisor for numerous undergraduate and graduate independent study projects. (CS 399/499 and REUs). Eight of Dinda's undergraduate students have been awarded Honorable Mentions in the CRA's national Outstanding Undergraduate Researcher Awards. One was awarded a DOE Computational Science Graduate Fellowship (DOE CSGF). A second was awarded an NSF Graduate Research Fellowship (NSF GRFP). Mentored undergraduates have gone on to Ph.D. programs at CMU, UIUC, NYU, U. Chicago, ETHZ, Stanford, UBC, U. Victoria, and Northwestern.

Committee Memberships (graduated students), Outside of Northwestern University

- Brian Tauro, November, 2024 (Ph.D. in CS, Illinois Institute of Technology)
  - Topic: Automated Techniques for Enhancing Developer Productivity on Disaggregated Software Stacks
  - Now Software Engineer, Intuitive
- Brian Kocoloski, September, 2017 (Ph.D. in CS, University of Pittsburgh)
  - Topic: Mitigating Variation in High Performance Computing Systems
  - Now Assistant Professor, Computer Science and Engineering, Washington University in St. Louis
- Zheng Cui, June, 2013 (Ph.D. in CS, University of New Mexico)

  - Topic: Enhancing HPC on Virtual Systems in Clouds through Optimizing Virtual Overlay Networks
  - Now Member of Technical Staff, VMware
- Kevin Tew, May, 2013 (Ph.D. in CS, University of Utah)
  - Topic: Places: Parallelism for Racket
  - Now Assistant Professor, Computer Science, Brigham Young University
- Lide Zhang, January, 2013 (Ph.D. in CSE, University of Michigan)
  - Topic: Power and Peformance Modeling and Optimization for Mobile Systems and Applications
  - Now Senior Software Engineer, Facebook
- Lan Bai, June, 2011 (Ph.D. in CS at the University of Michigan)
  - Topic: Simplifying the Design of Wireless SensorNetworks with Programming Languages, Compilers, and Synthesis
  - Now Senior Software Engineer, EMC

Director, Graduate Studies (Ph.D. Program), Computer Science Department *Summer 2020–Fall 2022*
Wrote new Ph.D. manual
Instituted and built a "Black Friday" Ph.D. student review process
Instituted and built funding review process
Wide range of other program and process improvements
Details on phd.cs.northwestern.edu

Director, Computer Science Program in Weinberg College of Arts and Sciences *Fall 2008–Fall 2011*
Oversaw major revision of curriculum, name change to "Computer Science"

Committee chair, Computer Science Undergraduate Curriculum *Fall 2006–Fall 2009, Fall 2010–Fall 2011*
Oversaw major revision of the Northwestern Computer Science curriculum
Available in EECS Undergraduate Manual

Created EECS 395/495, Human-directed Approaches to Computer Systems Problems, Northwestern University *Winter 2008*
Graduate course on human interfaces as applied in computer systems

Created EECS 101, An Introduction to Computer Science For Everyone, Northwestern University *Spring 2007, 2008, 2009, 2010*
A non-programming "immigration course" for majors, minors, and interested students
Has become required course in Northwestern CS
http://www.nucs101.org

Created MSIT Short Course, Resource Virtualization and the Enterprise, Northwestern University *Winter 2007, 2010*
Taught by my student, John Lange, in 2009.

Created CS 343, Operating Systems, Northwestern University *Winter 2020, Winter 2021, Winter 2022, Winter 2023, Winter 2025, Winter 2026*
Course re-developed from scratch.
Five Northwestern-custom labs developed

Created EECS 340, Introduction to Networking, Northwestern University *Fall 2000, Winter 2002, Winter 2003*
Course developed from scratch.
Software developed: Minet user-level network stack.
Project-oriented (web server/tcp/routing) introduction to networking
Courseware and syllabus continues to be used.

Created EECS 339, Introduction to Databases, Northwestern University *Fall 2003, 2004, 2005, 2006, 2007, 2010, 2012, 2013, 2014, 2015, Winter 2019*
Course developed from scratch.
Project-oriented (web application, btree+join) introduction to database systems.

Created EECS 213, Introduction to Computer Systems, Northwestern University *Fall 2001, Fall 2002, Spring 2005, Fall 2008, Fall 2009, Fall 2011, Spring 2013, Spring 2014, Spring 2015, Spring 2016, Spring 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022, Fall 2024, Fall 2025*
Course developed from scratch.
In-depth undergraduate introduction to computer systems practice.
Has become a required course in Northwestern CS

Created EECS 395/495 / 446, Kernel and Other Low-level Software Development, Northwestern University *Winter 2016, Spring 2017, Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2025, Spring 2026*
Graduate/undergraduate course in low-level software development
Develop the tools and modes of thinking for such development
Kernels, VMMs, firmware, embedded, etc.

Created EECS 395/495 / 442, Dynamic Behavior of Applications, Hosts, and Networks, Northwestern University *Winter 2001, Spring 2002, Spring 2003, Spring 2006*
Graduate course in performance analysis of computer systems.
Focus on signal-processing approaches.

Created EECS 395/495 / 441, Resource Virtualization, Northwestern University *Winter 2004, Winter 2006, Winter 2009, Winter 2010, Winter 2011, Spring 2012, Winter 2013, Winter 2014, Winter 2015, Winter 2016*
Graduate course in virtual machine technologies.
Highly timely course, one of only a handful in the nation. Major revision in 2009 refocuses course on VMM design and implementation using our Palacios codebase

Created (with Robert Dick) ECE 397, Introduction to Real-time Systems, Northwestern University
Winter 2005
Course developed from scratch
First ever joint CS/ECE course
Project orientation (sensor network combining pocket pcs and motes)

Teaching assistant for operating systems, Carnegie Mellon University *Spring 1995, Spring 1996*
Designed homeworks, assisted students with programming projects, lectured on special topics

Co-advisor for undergraduate projects, Carnegie Mellon University
Advised five undergraduate projects on the iWarp supercomputer radio, HTML parsing, distributed object naming, and web design.

Publications

Patents

L. Yang, R. Dick, X. Chen, G. Memik, P. Dinda, A. Shye, B. Ozisikyilmaz, A. Mallik, A. Choudhary, "System and Method for Controlling Power Consumption in a Computer System Based on User Satisfaction", United States Patent Number 8,706,652, issued April 22, 2014.

A. Shye, Y. Pan, B. Scholbrock, J. S. Miller, G. Memik, P. Dinda, R. Dick, "System and Method for Leveraging Human Physiological Traits to Control Microprocessor Frequency", United States Patent Number 8,638,242, issued March 25, 2014.

P. Dinda, A. Sundararaj, J. Lange, A. Gupta, B. Lin, " Methods and Systms for Automatic Inference and Adaptation of Virtualized Computing Environments", United States Patent Number 8,145,760, issued March 27, 2012.

P. Dinda, S. Rossoff, "System and Method for Speculative Remote Display", United States Patent Number 7,991,831, issued August 2, 2011.

P. Dinda, G. Memik, R. Dick, A. Mallik, B. Lin, "Systems and Methods for Process and User Driven Dynamic Voltage and Frequency Scaling", United States Patent Number 7,913,071, issued March 22, 2011.

P. Dinda, B. Lin, A. Sundararaj, "Methods and Systems for Time-Sharing Parallel Applications with Performance-Targetted Feedback-Controlled Real-Time Scheduling", Pending.

Editing

P. Dinda, "Special Issue on the Best Papers of the 19th ACM Symposium on High Performance Distributed Computing (HPDC 2010)", *Cluster Computing*, Volume 5, Number 2, June, 2012 (as guest editor).

P. Dinda, *Proceedings of the 19th ACM Symposium on High Performance Distributed Systems (HPDC 2010)*, June, 2010 (as program chair).

R. Figueiredo, P. Dinda, J. Fortes, "Resource Virtualization Renaissance," Guest Editors' Introduction to *IEEE Computer Special Issue On Resource Virtualization*, May, 2005.

Journal Articles

M. Wilkins, Y. Guo, R. Thakur, P. Dinda, N. Hardavellas, "Practical Machine Learning Autotuning for Large-Scale Collective Communication", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Volume 37, Number 5, May, 2026.

H. Qiao, V. Srinivas, P. Dinda, R. Dick, "Efficient Video Redaction at the Edge: Human Motion Tracking for Privacy Protection", *ACM Transactions on Embedded Computer Systems (TECS)*, Volume 24, Number 5s, September, 2025.

G.Huang, H. Cai, M. Swiech, Y. Zhang, X. Liu, P. Dinda, "DelayDroid: An Instrumented Approach to Reducing Talk-time Energy of Android Apps", *Science China Information Sciences*, Volume 60, 012106:1–012106:16, January, 2017.

L. Xia, Z. Cui, J. Lange, Y. Tang, P. Dinda, P. Bridges, "Fast VMM-based Overlay Networking For Bridging the Cloud and High Performance Computing", *Cluster Computing,* Volume 17, Number 1, March 2014.

L. Yang, R. Dick, G. Memik, P. Dinda, "HAPPE: Human and Application Driven Frequency Scaling for Processor Power Efficiency", *IEEE Transactions on Mobile Computing*, Volume 12, Number 8, August 2013. (**Selected as Spotlight Paper for Issue**)

P. Bridges, D. Arnold, K. Pedretti, M. Suresh, F. Lu, P. Dinda, R. Joseph, J. Lange, "Virtual Machine-based Emulation of Future Generation High-performance Computing Systems, *International Journal of High Performance Computing Applications*, Volume 26, Number 2, May, 2012.

Y. Tang, L. Xia, Z. Cui, J. Lange, P. Dinda, P. Bridges, J. Li, "High Performance Virtual Network Embedding Virtual Machine Monitor" (English Title), Chinese Journal of Scientific Instrument, Volume 33, Number 5, May, 2012.

G. Hoang, C. Bae, J. Lange, L. Zhang, P. Dinda, R. Joseph, "A Case for Alternative Nested Paging Models for Virtualized Systems", *Computer Architecture Letters*, Volume 9, Number 1, January–June 2010.

L. Xia, J. Lange, P. Dinda, C. Bae, "Investigating Virtual Passthrough I/O on Commodity Devices", *Operating Systems Review*, Volume 43, Number 3, July 2009.

B. Lin, A. Sundararaj, P. Dinda, "Time-sharing Parallel Applications Through Performance-targetted Feedback-controlled Real-time Scheduling", *Cluster Computing*, Volume 11, Number 3, September 2008.

Y. Qiao, D. Lu, Fabian Bustamante, P. Dinda, S. Birrer, "Improving Peer-to-Peer Performance Through Server-Side Scheduling", *ACM Transactions on Computer Systems*, Volume 26, Number 4, December, 2008.

A. Mallik, B. Lin, G. Memik, P. Dinda, R. Dick, "User-driven Frequency Scaling", *Computer Architecture Letters*, Volume 5, Number 2, July–December, 2006.

R. Schweller, Z. Li, Y. Chen, Y. Gao, A. Gupta, E. Parasons, Y. Zhang, P. Dinda, M. Kao, G. Memik, "Reversible Sketches: Enabling Monitoring and Analysis over High-speed Data Streams", *IEEE/ACM Transactions on Networking*, Volume 15, Number 5, October 2007.

P. Dinda, "Design, Implementation, and Performance of an Extensible Toolkit for Resource Prediction In Distributed Systems," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, Volume 17, Number 2, February, 2006.

P. Dinda, D. Lu, "Fast Compositional Queries in a Relational Grid Information Service,", *Journal of Grid Computing*, Volume 3, Numbers 1-2, June, 2005.

A. Sundararaj, M. Sanghi, J. Lange, P. Dinda, "An Optimization Problem in Adaptive Virtual Environments," *Performance Evaluation Review*, Volume 33, Number 2, 2005.

D. Lu, P. Dinda, "GridG: Generating Realistic Computational Grids," *Performance Evaluation Review*, Volume 30, Number 4, pages 33–40, 2003.

P. Dinda, "Online Prediction of the Running Time of Tasks," *Cluster Computing*, Volume 5, Number 3, 2002, pages 225–236.

P. Dinda, D. O'Hallaron, "Host Load Prediction Using Linear Models," *Cluster Computing*, Volume 3, Number 4, Winter, 2000.

P. Dinda, "The Statistical Properties of Host Load," *Scientific Programming*, 7:3-4, pages 211–229, Winter, 1999.

Conference Papers

M. Polinski, P. Dinda, "A Novel Nudging Attack on Scientific Applications", *Proceedings of the 22nd IEEE International eScience Conference (eScience'26)*, September, 2026.

K. Hayes, P. Dinda, "Floating Point Virtualization with Tiny Numbers", *Proceedings of the 35th ACM Symposium on High-performance Parallel and Distributed Computing (HPDC 2026)*, July, 2026.

K. Hallsby, L. Strand, P. Dinda, "Hardware-based Kernel-Bypass Exceptions to Accelerate Floating Point Tracing and Virtualization (poster)" *Proceedings of the 35th ACM Symposium on High-performance Parallel and Distributed Computing (HPDC 2026)*, July, 2026. **Best Poster**

K. Hallsby, P. Dinda "Hardware Deserves a REPL", *Proceedings of the 5th Workshop on Languages, Tools, and Techniques for Accelerator Design (LATTE 2026 @ ASPLOS)*, March, 2026.

P. Liu, S. Rhee, M. Wilkins, P. Dinda, "Parameterized Algorithms and Parameter Selection for Fast GPU-GPU Collective Communication", *Proceedings of the 33rd IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunications Systems (MASCOTS 2025)*, October, 2025.

H. Qiao, V. Srinivas, P. Dinda, R. Dick, "Efficient Video Redaction at the Edge: Human Motion Tracking for Privacy Protection", *Proceedings of the International Conference on Hardware/Software Codesign and System Synthesis (CODES-ISSS 2025)*, October, 2025. (Noted in journal articles (above) as well, as this paper was journal-tracked).

N. Wanninger, N. Dhiantravan, P. Dinda, "Virtualization So Light, it Floats! Accelerating Floating Point Virtualization", *Proceedings of the 34th ACM Symposium on High-performance Parallel and Distributed Computing (HPDC 2025)*, July, 2025.

Z. Lin, Z. Yu, Z.i Guo, S. Campanoni, P. Dinda, X. Xing, "CAMP: Compiler and Allocator-based Heap Memory Protection", *Proceedings of the 33rd USENIX Security Symposium (USENIX Security 2024)*, August, 2024.

N. Wanninger, T. McMichen, S. Campanoni, P. Dinda, "Getting a Handle on Unmanaged Memory", *Proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, (ASPLOS 2024)*, April-May, 2024.

Y. Su, M. Rainey, N. Wanninger, N. Dhiantravan, J. Liang, U. Acar, P. Dinda, S. Campanoni, "Compiling Loop-Based Nested Parallelism for Irregular Workloads", *Proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, (ASPLOS 2024)*, April-May, 2024.

B. Tauro, B. Suchy, S. Campanoni, P. Dinda, K. Hale, "TrackFM: Far-out Compiler Support for a Far Memory World", *Proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, (ASPLOS 2024)*, April-May, 2024.

T. Filipiuk, N. Wanninger, N. Dhiantravan, C. Surmeier, A. Bernat, P. Dinda, "CARAT KOP: Towards Protecting the Core HPC Kernel from Linux Kernel Modules" , *Proceedings of the 13th International Workshop on Runtime and Operating Systems for Supercomputers (ROSS 2023)*, November, 2023.

M. Wilkins, H. Wang, P. Liu, B. Pham, Y. Guo, R. Thakur, N. Hardavellas, P. Dinda, "Generalized Collective Algorithms for the Exascale Era", *Proceedings of the 25th IEEE Conference on Cluster Computing (Cluster 2023)*, October–November, 2023.

M. Wilkins, G. Weil, L. Arnold, N. Hardavellas, P. Dinda, "Evaluating Functional Memory-Managed Parallel Languages for HPC using the NAS Parallel Benchmarks", *Proceedings of the 28th International Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS workshop at IPDPS 2023)*, May, 2023.

M. Wilkins, S. Westrick, V. Kandiah, A. Bernat, B. Suchy, E. Deiana, S. Campanoni, U. Acar, P. Dinda, N. Hardavellas, "WARDen: Specializing Cache Coherence for High-Level Parallel Languages", *Proceedings of the 21st IEEE/ACM International Symposium on Code Generation and Optimization (CGO 2023)*, February, 2023.

E. Deiana, B. Suchy, M. Wilkins, B. Homerding, T. McMichen, K. Dunajewski, P. Dinda, N. Hardavellas, S. Campanoni, "Program State Element Characterization", *Proceedings of the 21st IEEE/ACM International Symposium on Code Generation and Optimization (CGO 2023)*, February, 2023.

M. Wilkins, Y. Guo, R. Thakur, N. Hardavellas, P. Dinda. ACCLAiM: Advancing the Practicality of MPI Collective Communication Autotuning Using Machine Learning", *Proceedings of the 24th IEEE Conference on Cluster Computing (Cluster 2022)*, September, 2022.

P. Dinda, N. Wanninger, J. Ma, A. Bernat, C. Bernat, S. Ghosh, C. Kraemer, Y. Elmasry, "FPVM: Towards a Floating Point Virtual Machine", *Proceedings of the 31st ACM Symposium on High-performance Parallel and Distributed Computing (HPDC 2022)*, June, 2022.

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Presentations

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"Spying on the Floating Point Behavior of Existing, Unmodified Scientific Applications", *HPDC 2020*, June, 2020.

"Prospects for Functional Address Translation", *MASCOTS 2019*, October 2019.

"Hard Real-time Scheduling for Parallel Run-time Systems", *HPDC 2018*, June 2018.

"Do Developers Understand IEEE Floating Point?", *IPDPS 2018*, May 2018.

"Dark Shadows: User-level Guest/Host Linux Process Shadowing", *IC2E 2017*, April 2017.

"Prospects for Shaping User-centric Mobile Application Workloads to Benefit the Cloud", *MASCOTS 2016*, September, 2016.

"Reimagining the Parallel OS/R Stack with Hybrid Runtimes", *DOE Operating Systems/Runtime PI Meeting*, May, 2016.

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"Adaptive Virtualization for Optimizing Performance, Reliability, and Power/Energy Tradeoffs in Scalable Systems", *DOE Exascale Research Conference*, April, 2012.

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"User- and Process-Driven Dynamic Voltage and Frequency Scaling", *ISPASS 2009*, April, 2009.

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"Attacking Scientific Applications", keynote, *12th Greater Chicago Area Systems Research Workshop (GCASR 2025)*, May, 2025.

"Towards Performant Floating Point Virtualization"', *NSF Computer Systems Research PI Meeting*, October, 2023.

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"A Prediction-based Approach to Distributed Interactive Applications", Illinois Institute of Technology, Chicago, Illinois, November 5, 2001.

"A Unified Relational Approach to Grid Information Services," First Global Grid Forum, Amsterdam, March 6, 2001.

"Virtualized Audio as a Distributed Interactive Application," Access Grid Technical Retreat 2001, Argonne, IL, January 30, 2001.

"Load Prediction for Best-effort Real-time,", *Poster for ARPA Quorum PI Meeting*, San Diego, CA, July 11, 1998.

"Load Analysis and Prediction for Responsive Interactive Applications," *ARPA Site visit (Gary Koob)*, Pittsburgh, PA, April 14, 1998.

"Responsive Interactive Applications by Dynamic Mapping of Activation Trees," *BBN Technologies*, Cambridge, Massachusetts, February 20, 1998.

"Distributed User-centric Applications," *Intel Fellowship Forum*, Santa Clara, California, May, 1996.

"PVM-based Implementations of Fx and Archimedes," *PVM Users' Group Meeting*, Pittsburgh, Pennsylvania, May 7, 1995.

Grants

The following grants are for $26.6 Million total, of which Northwestern's share was $11.3 Million and my share was $7 Million. The funds came from NSF, DOE, Sandia, Oak Ridge, Argonne, Intel, Symantec, and other sources. In-kind support, particularly access to prototype hardware and similar resources, is not included in these figures. Additionally, my Ph.D. students have been externally supported

through the Symantec Reseach Labs Fellowhship, the Dr. John N. Nicholson Fellowship, the GEM Ph.D. Fellowship, the National Science Foundation Graduate Research Fellowship, and Department of Energy Computational Research Graduate Fellowships.

"CS2: Automatically Extracting High-Level Specifications from Large Scientific Codebases to Enhance Understandability and Correctness", NSF 2546694 / DOE TBD, May, 2026 through April, 2030, $800,000 ($200K/$600K split between two agencies), Co-PI. This project is in collaboration with Andrew Crotty (NU, PI), Christos Dimoulas (NU, co-PI), Hai Zhou (NU, co-PI), Akash Dhruv (Argonne National Labs, PI), and Rajeev Thakur (Argonne National Labs, co-PI). Across the two institutions and agencies, the funded toal is $2.4 Million.

"Enhancing Collective Communication for Machine Learning with Machine Learning", National Artificial Intelligence Research Resource (NAIRR) Pilot Project 240286, October 2024 through June, 2026, Principal Investigator (co-authored with Ph.D. student Peizhi Liu). This award provides about $26,000 in Amazon AWS resources, and about 60,000 GPU hours (similar value) on NCSA Delta, PSC Bridges, and SDSC Expanse supercomputers.

"Collaborative Research: CNS Core: Medium: The Privacy Backplane - A Full Stack Approach to Individualized Privacy Controls Throughout the Internet-of-Things", NSF CNS-2211508, October 2022 through September, 2026, $410,000 (includes $24K in REU funds), Principal Investigator. This project is in collaboration with Jack Lange (Lead PI and PI of collaborative grant) at the University of Pittsburgh and Oak Ridge National Laboratories, and Robert Dick (PI of collaborative grant) at the University of Michigan. Across the three institutions, the funded toal is $1.2 Million.

"CNS Core: Medium: A Systems and User-based Approach to Floating Point Correctness and Resilience", NSF CNS-2211315, October, 2022 throuh March, 2027, $830,000 (includes $36K in REU funds), Principal Investigator.

"A Heterogenous Hardware Environment for Systems and Security Research", Northwestern University McCormick School of Engineering and Applied Sciences Internal Equipment Award, 2022, amount confidential, Co-PI. This project is in collaboration with Nikos Hardavallas (PI), Simone Campanoni (co-PI), and Yan Chen (co-PI).

"Amazon AWS support funds for NSF CCF-2119069", NSF CloudBank (www.cloudbank.org), June, 2022 through May, 2023, $20,000, Principal Investigator. This provides funds for Amazon AWS to support the noted NSF project, which is listed below.

"Collaborative Research: PPoSS: LARGE: Unifying Software and Hardware to Achieve Performant and Scalable Frictionless Parallelism in the Heterogeneous Future", NSF CCF-2119069, October, 2021 through September, 2026, $2 Million (includes $32K in REU funds), Principal Investigator and Lead PI. This project is in collaboration with Simone Campanoni (co-PI) and Nikos Hardavellas (co-PI) at Northwestern, and Umut Acar (PI of collaborative grant) and Guy Blelloch (co-PI) at Carnegie Mellon. Across the two institutions, the funded total is $4 Million.

"Exploring Machine Learning-based Approaches to Auto-tuning Distributed Memory Communication", Argonne National Laboratory, March, 2020 through December 2023, amount private, Principal Investigator. This project is in collaboration with Nikos Hardavellas (co-PI) at Northwestern, and Michael Wilkins (lead student).

"Collaborative Research: PPoSS: Planning: Unifying Software and Hardware to Achieve Performant and Scalable Zero-cost Parallelism in the Heterogeneous Future", NSF CCF-2028851, October, 2020 through September 2023, $145,000 (includes $16K in REU funds). Principal Investigator and Lead PI. This project is in collaboration with Simone Campanoni (co-PI) and Nikos Hardavellas (co-PI) at Northwestern, Kyle Hale at Illinois Institute of Technology (PI of collaborative grant), and Umut Acar at Carnegie Mellon (PI of collaborative grant). Across the three institutions, the funded total is $250,000. The purpose of this award is to plan a large scale submission to the PPoSS program.

"CSR: Medium: Collaborative Research: Interweaving the Parallel Software/Hardware Stack", NSF CNS-1763743, October, 2018 through September 2023, $944,000. (Includes $44K in REU funds.) Principal Investigator and Lead PI. This project is in collaboration with Simone Campanoni (co-PI) and Nikos Hardavellas (co-PI) at Northwestern and Kyle Hale at Illinois Institute of Technology (PI of collaborative grant). Across the two institutions, the funded total is $1.25 Million.

"Exploring the Integeration of FPGA-based Reconfigurable Hardware with Specialized OS Environments", Intel Hardware Accelerator Research Program (HARP), May, 2017, prototype hardware accesss. Northwestern PI. Lead PI is Kyle Hale, IIT.

"XPS: EXPL: CCA: Merging Parallel Run-times and Operating Systems", NSF CCF-1533560, September, 2015 through August 2019, $336,000. Principal Investigator. (Includes $36K in REU funds.)

"Hobbes: OS and Runtime Support for Application Composition", DOE via subcontract from Sandia National Labs, September, 2013 through September, 2017, $450,000. Principal Investigator. (This project, which in part leverages virtualization technologies developed under NSF and DOE funding noted below, is a collaboration of four national labs and ten universities, and has a funded total of $7.5 Million).

"Predicting and Utilizing User Satisfaction to Improve Smartphone Efficiency", Intel Corporation, September, 2013 through September, 2018, $300,000. Co-PI. (This project is in collaboration with Gokhan Memik (PI)).

"EAGER: Collaborative Research: Model-Based Autonomic Cloud Computing Software Technology", NSF CNS-1265347, August, 2013 through July, 2016, $83,000. Principal Investigator. (This project is in collaboration with Jose Fortes, Renato Figueiredo, and Mauricio Tsugawa at the University of Florida and has a funded total of $250,000). The project is intentionally designed to bootstrap US/China collaboration. A companion project in China led by Drs. Gang Huang (Peking University), Xin Peng (Fudan University), and Chang Xu (Nanjing University) has been funded by China's National Natural Science Foundation.

"Collaborative Integration of Heterogeneous Sensing, Actuation, and Computing Devices (CIHSAC)", Northwestern University Murphy Society Award, October, 2011 though September 2014, $65,289. Co-PI. (This project is in collaboration with Goce Trajcevski (PI), Larry Henschen (PI), Yan Chen, Aleksandar Kuzmanovic, and Peter Scheuermann).

"Enabling Exascale Hardware and Software Design through Scalable System Virtualization", DOE X-Stack Program, September, 2010 through August, 2014, $730,000. Principal Investigator. (This project is in collaboration with Russ Joseph and Fabian Bustamante. It is part of a four site (Northwestern University, University of New Mexico, Sandia National Labs, Oak Ridge National Labs) collaboration with a funded total of $2.5 Million).

"Towards Multicore Guest Support in the Palacios Virtual Machine Monitor", Sandia National Labs, April, 2010 through June, 2011, $50,000. Principal Investigator.

"Student Travel Support for ACM HPDC 2010", NSF CCF-1026810, June, 2010 through May, 2011, $10,000.

"CSR-PDOS: Optimizing the Client/Server Environment Subject to User Satisfaction", NSF CNS-0720691, September 2007 through August, 2011, $754,000. Principal Investgator. (Includes $34K in REU funds. This project is in collaboration with Gokhan Memik at Northwestern and Robert Dick at University of Michigan).

"Collaborative Research: Community Resource Development: An Open Source Extensible Virtual Machine Monitor", NSF CNS-0709168, September 2007 through August, 2011, $540,000. Principal Investigator. (Includes $40K in REU funds. This project is in collaboration with Fabian Bustamante and Russ Joseph at Northwestern, and Patrick Bridges at the University of New Mexico. The total amount is approximately $840,000).

"Collaborative Research: NeTS-NOSS: Sensor Network Synthesis—Opening the Use of Sensor Networks to Application Experts", NSF CNS-0721978, September 2007 through August, 2011, $474,000. Principal Investigator. (Includes $24K in REU funds. This project is in collaboration with Charles Dowding, and Larry Henschen at Northwestern, Robert Dick at the University of Michigan, and Pai Chou at the University of California Irvine. The total amount is approximately $624,000).

"Towards an Extensible Virtual Machine Monitor for Modern Architectures", Subcontract, via Oak Ridge National Labs, of DOE DE-AC05-00OR22725, March, 2007 through September, 2007, $25,000. Principal Investigator.

"Graduate Research Seminar in Computer Science and Computer Engineering", Symantec Corporation. Amount confidential. Principal Investigator.

"Integrated Modular Trustworthy Computing Curriculum Development", Microsoft Trustworthy Computing Award, March, 2006, $50,000. (This project is in collaboration with Fabian Bustamante, Yan Chen, and Aleksander Kuzmanovic).

"A Virtual Lab for Experimental Systems Education", Northwestern University Murphy Society Award, October, 2005, $35,750. Co-PI. (This project is in collaboration with Fabian Bustamante, Yan Chen, Brian Dennis, and Aleksandar Kuzmanovic).

"Collaborative Research on Wide Area Network Computing using Virtual Machines", NSF EIA (Equipment) award EIA-0224449, November 15, 2002 to November 14, 2005, $182,000. Principal Investigator. (Includes $25K in REU funds. This grant is in collaboration with Jose Fortes and Renato Figueiredo at the University of Florida. The total amount is approximately $500,000.)

Equipment gift from Dell Corporation, October, 2002, $20,000. Principal Investigator.

"DOT — Distributed Optical Testbed to Facilitate the Development of Techniques for Efficient Execution of Distributed Applications", NSF EIA (Equipment) Award EIA-0224427, $279,000, September 1, 2002 to August 31, 2005. Co-PI. (This grant is in collaboration with Valerie Taylor and Alok Choudhary of Northwestern's Electrical and Computer Engineering Department and Joel Mambretti of the International Center for Advanced Internet Research.)

"Collaborative Research: Resource and Data Management for Virtualized End-resources on Computational Grids," NSF Middleware Initiative Award (NSF NMI) ANI-0222749, November 15, 2002 to August 31, 2006, $250,000. Principal Investigator. (This grant is in collaboration with Jose Fortes and Renato Figueiredo at the University of Florida. This figure represents my portion of a total of over $700,000.)

"A Unified Relational Approach to Grid Information Services," NSF ITR Award ACI-0112891, September 15, 2001 to September 14, 2005, $267,000. Principal Investigator. (This is one of two collaborative research grants on this topic. My collaborator is Beth Plale at Indiana University. The figure represents my portion of a total of over $460,000. Funds include $38K in REU funds.)

"A Shared Data Cluster for Real Time Interaction With Massive Datasets," NSF EIA (Equipment) Award EIA-0130869, $158,000, September 1, 2001 to August 31, 2003. Co-PI. (In collaboration with Ben Watson and Brian Dennis.)

"A Prediction-based Approach to Distributed Interactive Applications," NSF CAREER Award ANI-0093221, September 1, 2001 to August 31, 2006, $572,000. Principal Investigator. (This figure includes REU funds of approximately $72,000.)

Service to Discipline

Program Vice Chair, ASPLOS 2027

General co-chair, Greater Chicago Area Systems Research Workshop (GCASR 2026)

Program committee member, Supercomputing 2026 (SC)

Program committee member, HPDC 2026

Program committee member, IPDPS 2026

Program committee member and area chair, SPAA 2025

Program committee member, HPDC 2025

Program committee member, IPDPS 2025

Program committee member, HPDC 2024

Member, National Science Foundation Computer Systems Research Panel, 2023

Program committee member, HPDC 2023

Program committee member, ICDCS 2023

Program committee member, HPDC 2022

Program committee member, ICDCS 2022

Program committee member, Workshop on High Performance Serverless Computing 2021

Program committee member, HPDC 2021

Program committee member, IPDPS 2021

Program committee member, HPDC 2020

Program committee member, Supercomputing 2020 (SC)

Program committee member, IPDPS 2020

Program committee member, HPDC 2019

Program committee member, Supercomputing 2019 (SC)

Program committee member, IC2E 2018

Associate Editor, IEEE Transactions on Cloud Computing, 2018–2023

Panelist, "Autonomous Infrastructure for Science", AI-Science Workshop 2018

Program committee member, Supercomputing 2018 (SC)

Program committee member, HPDC 2018

Program committee member, PPoPP 2018

Program committee member, IC2E 2018

Program committee member, HPDC 2017

Program committee member, IC2E 2017

Program committee member, ICS 2017

Member, National Science Foundation Computer Systems Research Panel, 2017

Program committee member, Supercomputing 2016 (SC)

Program committee member, HPDC 2016

Program committee member, ICDCS 2015

Program committee member, HPDC 2015

Program committee member, IC2E 2015

Program committee member, HPDC 2014

Program committee member, BigSystem 2014

Program committee member, IPDPS 2014

Program committee member, CCGrid 2014

Program committee member, DataCloud 2013

Panelist, "How Big is Your 'Big Data', and How Can HPDC Help?", HPDC 2013

Program committee member, HPDC 2013

External review committee member, ASPLOS 2013

Member, National Science Foundation Computer Systems Research Panel, 2013

Steering committe member, Greater Chicago-Area Systems Research Workshop (GSCAR), 2012–

Program committee member, Supercomputing 2012 (SC)

Program committee member, ICAC 2012

Program committee member, VTDC 2012

Program committee member, HPDC 2012

Panelist, "Cloud Computing: Hype or Reality?", ICDCS 2011

Program committee member, VTDC 2011

Program committee member, W-MUST 2011

Program committee member, SOCC 2011

Program committee member, HPDC 2011

Steering committee member, HPDC, 2010–

Program chair, HPDC 2010

Panelist, "Cloud versus Cloud: How Will Cloud Computing Shape Our World?", HPDC 2010

Panelist, "Scientific Cloud Computing: Reality or Vaporware?", ScienceCloud 2010

Program chair, VPACT 2010

Program committee member, VTDC 2010

Program committee member, ScienceCloud 2010

Program committee member, MTAGS 2009

Program committee member, CCGrid 2009

Program committee member, Cluster 2009

Program committee member, MMCS 2009

Program committee member, HPDC 2009

Program committee member, ICAC 2009

Program committee member, CCGrid 2009

Program committee member, VTDC 2009

Program committee member, HPCVirt 2009

Program committee member, MTAGS 2008

Program committee member, HPDC 2008

Program committee member, CCGrid 2008

Program committee member, VTDC 2007

Program committee member, XHPC/VHPC 2007

Program committee member, HPCVirt 2007

Program committee member, IWQoS 2007

Program committee member, CCGrid 2007

Program committee member, ICPP 2007

Program committee member, VTDC 2006

Program committee member, GridNets 2006

Program committee member, IEEE Cluster 2006

Program committee member of Supercomputing 2006 (SC 2006)

Program committee member of HPDC 2006

Panelist, Whole System Virtualization in High End Computing Systems, HPDC 2005

Program vice-chair, IEEE Cluster 2005

Program committee member of VECPAR 2005

Member, National Science Foundation Major Research Instrumentation Panel, 2005.

Program committee member of ICGNS 2005

Program committee member of Supercomputing 2005 (SC 2005)

Program committee member of HPDC 2005

Guest Editor, IEEE Computer special issue on virtualization (May, 2005)

Program committee member of LCR 2004

Program committee member of IEEE Cluster 2004

Program committee member of HPDC 2004

Member, Department of Energy Middleware and Networking Review Panel, Summer, 2003.

Co-founder and co-chair of the Relational Grid Information Services Research Group in the Global Grid Forum (GGF RGIS RG).

Program committee member of Grid 2003

Program committee member of Supercomputing 2003 (SC 2003)

Session chair, Resource Monitoring, HPDC 2003

Program committee member of HPDC 2003

Member, National Science Foundation Advanced Computing Research Panel, Fall 2002.

Program committee member of IEEE Cluster 2002

Session chair, Reliable Systems and Networks, ICPP 2001

Program committee member of ICPP 2001

Program committee member for CMU's SOCS Conference 1999

Reviewer for SIGMETRICS, HPDC, IPDPS, IPPS, ICPP, Supercomputing, SPAA, ISCA, HPCA, IEEE Network, SIGMM, IEEE TON, IEEE TOC, JPDC, TPDS, MASCOTS, Parallel Computing, Wireless Networks and others.

Proposal review for NSF, DOE, NWO (Dutch National Science Foundation)

Contributor to two ARPA Quorum PI Meetings.

Member of ACM, IEEE, and History of Science Society.

Service to Institution

Teaching, curriculum chair, graduate studies director, and division head items given in more detail above

Northwestern University Faculty Senator Representing EECS

Northwestern University Faculty Reappointment, Promotion, and Tenure Denial Appeal Panel

Northwestern McCormick School Promotion and Tenure Committee

Northwestern McCormick School Promotion and Tenure Ad Hoc Committees

Northwestern McCormick School Curriculum Committee

Northwestern McCormick School Space and Strategic Resources Committee

Northwestern EECS Department, Head of Computer Engineering and Systems Division (5 years)

Northwestern EECS Department, Chair of three faculty searches, member of numerous faculty search committees, most recently in 2017

Northwestern EECS Department, Chair of CS Curriculum Committee

Northwestern EECS Department committees: CS Curriculum, Computing, Distinguished Lecture Series, Recruiting

Northwestern CS Department: Numerous faculty searches, primary responsibility for searches in systems

Northwestern CS Department committees: Space, Computing, Chair Search, Faculty Search

Participant in Carnegie Mellon University's Immigration Course Research Symposium, 1994–1996.

Co-founder and secretary of CMU Photographic Society, 1993-1995.

Honors

8 advised undergraduates awarded Honorable Mentions in the CRA's national Outstanding Undergraduate Researcher Awards, most recently in 2025

Best Poster, HPDC 2026

Research Mentorship Award, Department of Computer Science, 2024-2025

Best Research Mentor, Department of Computer Science, 2020-2021

Best Paper, HPDC 2020

Best Reviewer, HPDC 2017

Best Paper, IC2E 2017

Best Paper, WristSense 2017

IEEE Fellow, 2015, cited for "contributions to virtualization technologies in adaptive and parallel computing"

Senior Member, IEEE, 2014

Spotlight paper, IEEE Transactions on Mobile Computing, 2013

Best paper nomination, HPDC 2012

One of the Best 20 Papers of the First 20 Years of HPDC, 1992–2012

Invitee, NAE E.U.-U.S. Frontiers of Engineering Conference, 2010

Best paper nomination, MICRO 2008

Coach of ACM ICPC World Finalist Team 2007–2008

Invitee, NAE U.S Frontiers of Engineering Conference, 2007

Best Teacher of the 2006–2007 academic year, Department of EECS, Northwestern University

Coach of ACM ICPC World Finalist Team 2006–2007

Best paper of the Freenix Track of USENIX 2004 (with Brian Cornell and Fabian Bustamante)

Lisa Wissner-Slivka and Benjamin Slivka Junior Professor of Computer Science, 2003-2006.

NSF CAREER, 2001.

Intel Foundation Fellowship, 1996-1997

Carnegie Mellon School of Computer Science Fellowship, 1993–1999

George P. Ryan Scholarship, 1988–1992

Alexander DeLorenzo Scholarship, 1988–1989

Villas Scholarship, 1988

Collaborators

Nabil Alshurafa, Northwestern University

Fabian Bustamante, Northwestern University

Simone Campanoni, Northwestern University

Yan Chen, Northwestern University

Andrew Crotty, Northwestern University

Christos Dimoulas, Northwestern University

Charles Dowding, Northwestern University

Robby Findler, Northwestern University

Nikos Hardavellas, Northwestern University

Gokhan Memik, Northwestern University

Russ Joseph, Northwestern University

Aleksander Kuzmanovic, Northwestern University

Hai Zhou, Northwestern University

Robert Dick, University of Michigan

Jack Lange, University of Pittsburgh / Oak Ridge National Labs

Adam Lee, University of Pittsburgh

Pai Chou, University of California, Irvine

Kevin Pedretti, Sandia National Labs

Ron Brightwell, Sandia National Labs

Arthur Maccabe, Oak Ridge National Labs

Stephen Scott, Oak Ridge National Labs

Patrick Bridges, University of New Mexico

Matthew Flatt, University of Utah

Bruce Lowekamp, College of William and Mary

Valerie Taylor, Texas A&M / Argonne National Labs

Renato Figuerido, University of Florida / Oregon State University

Jose Fortes, University of Florida

Beth Plale, Indiana University

David O'Hallaron, Carnegie Mellon University

Umut Acar, Carnegie Mellon University

Guy Blelloch, Carnegie Mellon University

Mike Rainey, Carnegie Mellon University

Akash Dhruv, Argonne National Lab

Anshu Dubey, Argonne National Lab / RIKEN

Jennifer Schopf, Argonne National Lab

Min Si, Argonne National Lab

Rajeev Thakur, Argonne National Lab

Gang Huang, Peking University

Kyle Hale, Illinois Institute of Technology / Oregon State University

Ioan Raicu, Illinois Institute of Technology

References

Available on request.

Litigation History

Available on request.

July, 2026