

JEFFREY K. HOLLINGSWORTH

1. PERSONAL INFORMATION

Interim Chief Information Officer, University of Maryland
Professor, Computer Science Department, UMIACS, and
Electrical and Computer Engineering Department (affiliate)

EDUCATION

- Ph.D. in Computer Sciences
University of Wisconsin-Madison, August 1994
- Master of Science in Computer Sciences
University of Wisconsin-Madison, May 1990
- Bachelor of Science in Electrical Engineering and Computer Science
University of California-Berkeley, May 1988

EMPLOYMENT

06/17-	Interim Chief Information Officer University of Maryland, College Park
07/12-	Professor University of Maryland, College Park
05/05 to 07/16	Adjunct Research Staff Member IDA Center for Computer Science
07/08 to 06/12	Professor and Associate Chair University of Maryland, College Park
07/06 to 06/08	Professor University of Maryland, College Park
8/00 to 06/06	Associate Professor University of Maryland, College Park
8/00 to 2/01	Visiting Scientist IBM T. J. Watson Research Center
8/94 to 8/00	Assistant Professor University of Maryland, College Park
6/93 to 7/94	ARPA High Performance Computing Fellow University of Wisconsin, Madison
1/89 to 6/93	Research Assistant University of Wisconsin, Madison
9/88 to 12/88	Teaching Assistant University of Wisconsin, Madison
5/88 to 9/88	Member of the Technical Staff TRW, Redondo Beach CA
9/87 to 5/88	Programmer/Analyst University of California, Berkeley
Summers 1985-87	Computer Programmer TRW, Redondo Beach CA

2. RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

a Books

iii Chapters in Books

- A. Tiwari* and J. K. Hollingsworth, “End-to-end Auto-tuning with Active Harmony”, in *Performance Tuning in Scientific Computing*, D Bailey, R. Lucas, and S. Williams, ed., CRC Press, 2010.
- J. K. Hollingsworth, and B. Turney, “Instrumentation and Measurement”, in *The Grid: A Blueprint for the New Computing Infrastructure, 2nd Edition*, K. Kesselman and I. Foster, ed., Morgan-Kaufmann, 2003.
- J. K. Hollingsworth, P. Keleher, and K. D. Ryu*, “Resource-Aware Meta-Computing”, in *Advances in Computers*, M. Zelkowitz, ed., Academic Press, 2000, pp. 109-169.
- J. K. Hollingsworth, and B. P. Miller, “Instrumentation and Measurement”, in *The Grid: A Blueprint for the New Computing Infrastructure*, K. Kesselman and I. Foster, ed., Morgan-Kaufmann, 1998.
- J. K. Hollingsworth, B. P. Miller, and J.E. Lumpp, “Techniques for Performance Measurement of Parallel Programs”, *Parallel Computing: Theory and Practice*, T. L. Casavant, ed., IEEE Computer Society Press, 1995.
- B. P. Miller, J. K. Hollingsworth, and M. D. Callaghan, “The Paradyn Parallel Performance Tools and PVM”, *Environments and Tools for Parallel Scientific Computing*, SIAM Press, J. Dongarra and B. Tourancheua, eds., 1994.

b Articles in Refereed Journals

- M. O. Lam, J. K. Hollingsworth, “Fine-grained floating-point precision analysis” , *International Journal of High Performance Computing Applications*, SAGE Publications, June 2016.
- S. Song⁺ and J. K. Hollingsworth, “Computation–communication overlap and parameter auto-tuning for scalable parallel 3-D FFT”, *Journal of Computational Science*, (vol. **14**), (May 2016), pp. 38-50.
- R. Chen*, J.K. Hollingsworth, “Towards Fully-Automatic Auto-Tuning Leveraging Features of Chapel”, *International Journal of High Performance Computing Applications*, (**27**)4, (November 2013), pp. 394-401.
- M.O. Lam*, J.K. Hollingsworth, “Dynamic Floating-point cancellation detection”, *Parallel Computing*, (**39**)3, (March 2013), pp.146-155.
- N. Rutar*, J. K. Hollingsworth, "Software Techniques for Negating Skid and Approximating Cache Miss Measurements", *Parallel Computing*, (**39**)3 (March 2013), pp.120-131.
- N. Rutar*, J. K. Hollingsworth, “Data Centric Techniques for Mapping Performance Data to Program Variables”, *Parallel Computing*, (**38**)1-2, 2012.
- A. Tiwari*, J. K. Hollingsworth, C. Chen, M. Hall, C. Liso, D. J. Quinlan, J. Chame, “Auto-tuning Full Applications: A Case Study”, *International Journal of High Performance Computing Applications*, (**25**) (Aug. 2011), pp. 286-294.
- A. Tiwari*, V. Tabatabae*, and J. K. Hollingsworth, “Tuning Parallel Applications in Parallel”, *Parallel Computing*, 2009.

- M. Tikir*, and J. K. Hollingsworth, "Hardware Monitors for Dynamic Page Migration", *JPDC* (**68**)9 (September 2008), pp. 1186-1200.
- V. R. Basili, J. Carver, D. Cruzes, L. Hochstein+, J. K. Hollingsworth, F. Shull, M. V. Zelkowitz, "Understanding The High Performance Computing Community: A Software Engineer's Perspective," *IEEE Software* (**25**)4 (July/August 2008), pp. 29-36.
- L. Hochstein+, T. Nakamura, V. R. Basili, S. Asgari, M. V. Zelkowitz, J. K. Hollingsworth, F. Shull, J. Carver, M. Voelp, N.o Zazworka, P. Johnson, "Experiments to Understand HPC Time to Development", *CTWatch Quarterly*, (**2**)4A (Nov. 2006).
- B. Buck* and J. K. Hollingsworth, "A New Hardware Monitor Design to Measure Data Structure-Specific Cache Eviction Information", *International Journal of High Performance Computing Applications*, (**20**)6 (Fall 2006).
- M. Tikir*, and J. K. Hollingsworth, "Efficient Online Computation of Statement Coverage", *Journal of Systems and Software*, (**78**)2 (November 2005), pp. 146-165.
- C. C. Williams* and J. K. Hollingsworth, "Automatic Mining of Source Code Repositories To Improve Bug Finding Techniques", *IEEE Transactions on Software Engineering*, (**31**)6 (June 2005), pp. 466-480.
- K. D. Ryu*, and J. K. Hollingsworth, "Resource Policing to Support Fine-Grain Cycle Stealing in Networks of Workstations", *IEEE Transactions on Parallel and Distributed Systems*, **15**(10) (October 2004), pp. 878-892.
- I. Chung* and J. K. Hollingsworth, "Runtime Selection Among Different API Implementations", *Parallel Processing Letters* (**13**)2 (June 2003) pp. 123-134.
- H. S. Eom*, and J. K. Hollingsworth, "Achieving Efficiency and Accuracy in Simulation for I/O-Intensive Applications", *JPDC*, (**61**)12 (2001), pp. 1732-1750.
- H. S. Eom*, and J. K. Hollingsworth, "A Tool to Help Tune Where Computation is Performed", *IEEE Transactions on Software Engineering*, (**27**)7 (June 2001), pp. 618-629.
- B. Buck* and J. K. Hollingsworth, "An API for Runtime Code Patching", *International Journal of High Performance Computing Applications*, (**14**)4 (Winter 2000), pp. 317-329.
- T. M. Kurc, M. Uysal, H. Eom, J. Hollingsworth, J. Saltz, and A. Sussman "Efficient Performance Prediction for Large-Scale Data Intensive Applications", *International Journal of High Performance Computing Applications*, (**14**)3 (Fall 2000), pp. 217-227.
- K. D. Ryu*, and J. K. Hollingsworth, "Exploiting Fine Grained Idle Periods in Networks of Workstations", *IEEE Transactions on Parallel and Distributed Systems*, (**11**)7 July 2000, pp 683-698.
- J. K. Hollingsworth, and P. Keleher, "Prediction and Adaptation in Active Harmony", *Cluster Computing*, **2**(1999), pp. 195-205.
- E. L. Miller, K. Akala, J. K. Hollingsworth, "Binary Version Management for Computational Grids", *Parallel Processing Letters*, (**9**)2 (June 1999), pp. 215-226.
- J. K. Hollingsworth, "Critical Path Profiling of Message Passing and Shared Memory Programs", *IEEE Transactions on Parallel and Distributed Systems*, (**9**)10 (Oct. 1998), pp. 1029-1040.

- A. Whaeed, D. T. Rover, and J. K. Hollingsworth, “Modeling and Evaluating Design Alternatives for an Online Instrumentation System: A Case Study”, *IEEE Transactions on Software Engineering*, **24**(6) (June 1998), pp. 451-470.
- J. K. Hollingsworth, and B. P. Miller, “An Adaptive Cost Model for Parallel Program Instrumentation”, *Theoretical Computer Science (TCS)*, **(196)** 1-2 (April 1998), pp. 241-258.
- B. P. Miller, M. D. Callaghan, J. Cargille, J. K. Hollingsworth, R. B. Irvin, K. Karavanic, K. Kunchithapadam, T. Newhall, “The Paradyn Parallel Performance Measurement Tools”, *IEEE Computer*, **28** (11) (November 1995), pp. 37-46.
- B. P. Miller, M. Clark, J. Hollingsworth, S. Kierstead, S-S. Lim, T. Torzewski, “IPS-2: The Second Generation of a Parallel Program Measurement System”, *IEEE Transactions on Parallel and Distributed Systems*, **1** (2) (April 1990), pp. 206-217.

b' **Articles in Refereed Published Conferences**

- H. Zhang and J. K. Hollingsworth, “ChplBlamer: A Data-centric and Code-centric Combined Profiler for Multi-locale Chapel Programs”, (to Appear) International Conference on Supercomputing, Beijing, June 2018.
- R. Johnson and J.K. Hollingsworth, “Purity: An Integrated, Fine-Grain, Data-Centric, Communication Profiler for the Chapel Language”, (to Appear) CHI UW 2018: Chapel Implementers and Users Workshop, Vancouver, BC, May 2018.
- H. Agrawala, R. Chen, J. K. Hollingsworth, C. Hunga, R. Izmailov, J. Koshy, J. Liberti, C. Mesterharm, J. Morman, T. Panagosa, M. Puccia, I. Sebuktekina, S. Alexander, and Simon Tsang, “CASPER: An efficient approach to detect anomalous code execution from unintended electronic device emissions”, SPIE, Orlando Florida, April 2018.
- H. Zhang and J. K. Hollingsworth, “Data Centric Performance Measurement Techniques for Chapel Programs”. International Parallel and Distributed Processing Symposium (IPDPS17), May 2017.
- R. Johnson and J. K. Hollingsworth, “Optimizing Chapel for Single-Node Environments”, CHI UW 2016: The 3rd Annual Chapel Implementers and Users Workshop, May 2016.
- R. Chen and J. K. Hollingsworth, “ANGEL: A Hierarchical Approach to Multi-Objective Online Auto-Tuning”, Proceedings of the 5th International Workshop on Runtime and Operating Systems for Supercomputers (ROSS'15), June 2015.
- A. Sarje, S. Song⁺, D. Jacobsen, K. A. Huck, J. K. Hollingsworth, A. D. Malony, S. Williams, and L. Oliker, “Parallel Performance Optimizations on Unstructured Mesh-based Simulations”, Proceedings of the International Conference on Computational Science, (ICCS) June 1-3, 2015, Reykjav Iceland, pp. 2016-2025.
- S. Song⁺ and J. K. Hollingsworth. 2014. Scaling parallel 3-D FFT with non-blocking MPI collectives. In *Proceedings of the 5th Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems (ScalA '14)*. IEEE Press, Piscataway, NJ, USA, 1-8.
- J. K. Hollingsworth and S. Song⁺, Designing and Auto-Tuning Parallel 3-D FFT for Computation-Communication Overlap, *PPOPP'14*, Feb. 2014.
- M. O. Lam^{*}, J. K. Hollingsworth, B. R. de Supinski, M. P. LeGendre, “Automatically Adapting Programs for Mixed-Precision Floating-Point Computation”, Proceedings of the International Conference on Supercomputing (ICS), June 2013.

- T. Ince*, J. K. Hollingsworth, “Compiler Help for Binary Manipulation Tools”, 5th Workshop on Productivity and Performance, Rhodes GR, August 27-31 2012.
- M. O. Lam*, J. K. Hollingsworth, G. W. Stewart, “Dynamic Floating-Point Cancellation Detection”, Workshop on High-performance Infrastructure for Scalable Tools (WHIST 2011), June 2011.
- A. Tiwari*, J. K. Hollingsworth, “Online Adaptive Code Generation and Tuning”, IPDPS 2011, Anchorage, AK, May 2011 (**Best Paper – Software**).
- G. Stoker*, J. K. Hollingsworth, “Towards a Methodology for Deliberate Sample-Based Statistical Performance Analysis”, *HIPS*, May 2011.
- N. Rutar*, J. K. Hollingsworth, “Data Centric Techniques for Mapping Performance Measurements” *HIPS*, May 2011.
- T. Ince*, J. K. Hollingsworth, “Profile Driven Selective Program Loading”, EuroPar 2010, Naples Italy, Aug. 2010
- N. Rutar*, J. K. Hollingsworth, “Assigning Blame: Mapping Performance to High Level Parallel Programming Abstractions”, EuroPar 2009, Delft Netherlands, Aug. 2009.
- A. Tiwari*, C. Chen, J. Chame, M. Hall, and J.K. Hollingsworth, “A Scalable Autotuning Framework for Computer Optimization”, IPDPS 2009, Rome, May 2009.
- V. Tabatabaee+, J. K. Hollingsworth, “Automatic Software Interference Detection in Parallel Applications”, SC’07, Reno NV, Nov. 2007.
- R. Alameh*, N. Zazworka, J. K. Hollingsworth, “Performance Measurement of Novice HPC Programmers' Code”, Workshop on Software Engineering for High Performance Computing System (HPCS) Applications, May 2007.
- I-H. Chung*, J. K. Hollingsworth, “A Case Study Using Automatic Performance Tuning for Large-Scale Scientific Programs”, International Symposium on High Performance Distributed Computing (HPDC), Paris, June 2006.
- J. Spacco, D. Hovemeyer, W. Pugh, J. K. Hollingsworth, N. Padua-Perez, F. Emad, “Experiences with Marmoset: Designing and Using an Advanced Submission and Testing System for Programming Courses”, ITiCSE '06: Proceedings of the 11th annual conference on Innovation and technology in computer science education. ACM Press, June 2006.
- V. Tabatabaee+, A. Tiwari*, J. K. Hollingsworth, “Parallel Parameter Tuning for Applications with Performance Variability”, SC'05, Seattle WA, Nov. 2005.
- L. Hochstein+, J. Carver, F. Shull, S. Asgari, V. R. Basili, J. K. Hollingsworth, M. V. Zelkowitz, “Parallel Programmer Productivity: A Case Study of Novice Parallel Programmers”, SC'05, Seattle WA, Nov. 2005 (**Best paper by a student led author**).
- J. Odom*, L. DeRose, K. Ekanadham, J. K. Hollingsworth, S. Sbaraglia, “Using Dynamic Tracing Sampling to Measure Long Running Programs”, SC'05, Seattle WA, Nov. 2005.
- L. Hochstein+, V. Basili, M. Zelkowitz, J. K. Hollingsworth, J. Carver, “Combining Self-reported and Automatic Data to Improve Programming Effort Measurement”, Proceedings of Foundations of Software Engineering (FSE), Lisbon Portugal, Aug. 2005.
- C. Williams*, and J. K. Hollingsworth, “Recovering System Specific Rules from Software Repositories”, Proceedings of The International Workshop on Mining Software Repositories, St. Louis, MO, May 2005.

- S. Asgari, L. Hochstein⁺, V. Basili, J. Carver, J. K. Hollingsworth, F. Shull, M. Zelkowitz, “Generating Testable Hypotheses from Tacit Knowledge for High Productivity Computing”, Workshop on Software Engineering and High Performance Computing Applications, St. Louis, MO, May 2005.
- M. M. Tikir^{*}, J. K. Hollingsworth, “NUMA-Aware Java Heaps for Server Applications”, Proceedings of IPDPS’05, Denver, CO, April 2005.
- J. K. Hollingsworth, A. Snaveley, K. Ekanadham, S. Sbaraglia, “EMPS: An Environment for Memory Performance Studies”, Next Generation Software Program Workshop (held in conjunction with IPDPS), Denver, CO, April 2005
- I-H. Chung^{*}, J. K. Hollingsworth, “Using Information from Prior Runs to Improve Automated Tuning Systems”, Proceedings of SC’04, Nov. 2004.
- M. M. Tikir^{*}, J. K. Hollingsworth, “Using Hardware Counters to Automatically Improve Memory Performance”, Proceedings of SC’04, Nov. 2004
- B. R. Buck^{*}, J. K. Hollingsworth, “Data Centric Cache Measurement on the Intel Itanium 2 Processor”, Proceedings of SC’04, Nov. 2004.
- I. Chung^{*}, and J. K. Hollingsworth, “Automated Cluster-Based Web Service Performance Tuning”, Proceedings of HPDC 2004, June 2004.
- C. C. Williams^{*} and J. K. Hollingsworth, “Interactive Binary Instrumentation”, Proceedings of the Second International Workshop on Remote Analysis and Measurement of Software Systems (RAMSS), May 2004.
- C. Williams^{*} and J. K. Hollingsworth, “Bug Driven Bug Finders”, The International Workshop on Mining Software Repositories, May 2004.
- S. Asgari, V. Basili, J. Carver, L. Hochstein⁺, J. K. Hollingsworth, F. Shull, M. Zelkowitz, “Challenges in Measuring HPCS Learner Productivity in an Age of Ubiquitous Computing”, Workshop on Software Engineering for High Performance Computing System (HPCS) Applications, May 2004.
- S. Asgari, V. Basili, J. Carver, L. Hochstein⁺, J. K. Hollingsworth, F. Shull, M. Zelkowitz, “Studying Code Development for High Performance Computing: The HPCS Program”, Workshop on Software Engineering for High Performance Computing System (HPCS) Applications, May 2004.
- K. D. Ryu^{*}, and J. K. Hollingsworth, “Unobtrusiveness and Efficiency in Idle Cycle Stealing for PC Grids”, Proceedings of IPDPS 2004, April 2004.
- D. Hovemeyer, J. K. Hollingsworth, and B. Bhattacharjee, “Running on the Bare Metal with GeekOS”, Proceedings of the ACM Technical Symposium on Computer Science Education, March 2004.
- M. M. Tikir^{*}, G-Y Lueh, and J. K. Hollingsworth, “Recompilation for Debugging Support in a JIT-Compiler, PASTE’02, Nov 2002.
- L. Derose, K. Ekanadham, J K. Hollingsworth, and S. Sbaraglia, “SIGMA: A Simulator to Guide Memory Analysis”, Proceedings of SC’02, Nov. 2002.
- C. Tapus^{*}, I. Chung^{*}, and J. K. Hollingsworth, “Active Harmony: Towards Automated Performance Tuning”, Proceedings of SC’02, Nov. 2002.
- M. Tikir^{*}, J. K. Hollingsworth, “Efficient Instrumentation for Code Coverage Testing”, Proceedings of ISSTA, July 2002, pp. 86-96.
- K. D. Ryu^{*}, J. K. Hollingsworth, and P. J. Keleher, “Efficient Network and I/O Throttling for Fine-Grain Cycle Stealing”, Proceedings of SC’01, Nov. 2001.

- Luiz DeRose, Ted Hoover, and Jeffrey K. Hollingsworth, “The Dynamic Probe Class Library - An Infrastructure for Developing Instrumentation for Performance Tools”, IPDPS 2001, April 2001.
- B. Buck*, and J. K. Hollingsworth, “Using Hardware Performance Monitors to Isolate Memory Bottlenecks”, SC’2000, Nov. 2000.
- H. Eom*, and J. K. Hollingsworth, “Speed vs. Accuracy in Simulation of I/O-Intensive Applications”, *IPDPS’2000*, May 2000, pp. 315-322 (**Best Paper – Software**).
- R. Jaeger*, R. Duncan, F. Travostino, T. Lavian, and J. Hollingsworth, “Dynamic Classification in Silicon-Based Forwarding Engine Environments”, *LanMan-99*, October 1999.
- T. Lavian, R. F. Jaeger*, and J. K. Hollingsworth, “Open Programmable Architecture for Java-enabled Network Devices”, *Hot Interconnects*, Aug. 1999, pp. 265-277.
- K. D. Ryu*, J. K. Hollingsworth, and P. J. Keleher, “Mechanisms and Policies for Supporting Fine-Grained Cycle Stealing”, *International Conference on Supercomputing*, Rhodes, Greece, June 1999, pp. 93-100.
- J. K. Hollingsworth and S. Maneewongvatana*, “Imprecise Calendars: An Approach to Scheduling Computational Grids”, *International Conference on Distributed Computing Systems*, Austin, TX, June 1-4, 1999, pp. 352-359.
- P. J. Keleher, J. K. Hollingsworth, and D. Perkovic, “Exposing Application Alternatives”, *International Conference on Distributed Computing Systems*, Austin, TX, June 1999, pp. 384-392
- D. I. Kang⁺, R. Gerber, L. Golubchik, J. K. Hollingsworth, and M. Saksena, “A Software Synthesis Tool for Distributed Embedded System Design”, *SIGPLAN Workshop on Languages, Compilers, and Tools for Embedded Systems (LCTES)*, Atlanta, May 1999, pp. 87-95.
- A. Mink, W. Salamon, R. Arunachalam*, and J. K. Hollingsworth, “Performance Measurement using Low Perturbation and High Precision Hardware Assists”, *1998 Real Time Systems Symposium*, Madrid, Dec. 1998, pp. 379-388.
- K. D. Ryu* and J. K. Hollingsworth, “Linger Longer: Fine-Grain Cycle Stealing for Networks of Workstations”, *Proceeding of SC’98*, Orlando, Nov. 1998.
- K. Akala, E. L. Miller, and J. K. Hollingsworth, “Using Content-Derived Names for Package Management in Tcl”, *1998 USENIX Tcl/Tk Conference*, San Diego, Sept. 1998, pp. 171-179.
- J. K. Hollingsworth and P. Keleher, “Prediction and Adaptation in Active Harmony”, *High Performance Distributed Computing*, Chicago, July 28-31, 1998, pp. 180-188.
- H. Eom* and J. K. Hollingsworth, “LBF: A Performance Metric for Program Reorganization”, *International Conference on Distributed Computing Systems*, Amsterdam, May 26 - 29, 1998, pp. 229-229.
- J. K. Hollingsworth, E. Guven*, and C. Akinlar*, “Benchmarking a Network of PCs Running Parallel Applications”, *IEEE International Performance, Computing, and Communications Conference*, Feb. 1998, Tempe, Arizona, pp. 1-7.
- J. K. Hollingsworth, B. P. Miller, M. Goncalves, O. Naim, Z. Xu, and L. Zheng “MDL: A Language and Compiler for Dynamic Program Instrumentation”, *International Conference on Parallel Architectures and Compilation Techniques*, Nov 1997, San Francisco, pp. 201-212.

- J. K. Hollingsworth and E. L. Miller, “Using Content-Derived Names for Configuration Management”, *ACM Symposium on Software Reusability*, Boston, MA, May 1997, pp. 104-109.
- A. Waheed, D. Rover, and J. K. Hollingsworth, “Modeling, Evaluation, and Testing of Paradyn Instrumentation System”, *Supercomputing '96*, Pittsburgh, PA, November 1996.
- J. K. Hollingsworth and B. P. Miller, “An Adaptive Cost Model for Parallel Program Instrumentation”, *Euro-Par'96*, Lyon, France, August 1996, pp. 88-98.
- J. K. Hollingsworth, “An Online Computation of Critical Path Profiling”, *ACM SIGMETRICS Symposium on Parallel and Distributed Tools*, May 1996, pp. 11-20.
- A. Acharya, M. Uysal, R. Bennett, A. Mendelson, M. Beynon, J. K. Hollingsworth, J. Saltz, and A. Sussman “Tuning the Performance of I/O Intensive Parallel Applications”, *4th ACM Workshop on I/O in Parallel and Distributed Systems*, May 1996, pp. 15-27.
- J. K. Hollingsworth, B. P. Miller, and J. Cargille, “Dynamic Program Instrumentation for Scalable Performance Tools”, *Proceedings of the 1994 Scalable High Performance Computing Conference*, May 1994, pp. 841-850.
- J. K. Hollingsworth and B. P. Miller, “Dynamic Control of Performance Monitoring on Large Scale Parallel Systems”, *7th ACM International Conference on Supercomputing* July 1993, pp. 185-194.
- J. K. Hollingsworth and B. P. Miller, “Parallel Program Performance Metrics: A Comparison and Validation”, *Supercomputing'92*, Nov. 1992, pp. 4-13.
- J. K. Hollingsworth, R. B. Irvin, and B. P. Miller, “The Integration of Application and System Based Metrics in a Parallel Program Performance Tool”, *3rd ACM SIGPLAN Symposium on Principals and Practice of Parallel Programming*, April 1991, pp. 206-217.

⁺ Indicates a student, or Postdoc directly supervised by Dr. Hollingsworth.

^{*} Indicates a student co-advised by Dr. Hollingsworth.

e Talks, Abstracts, and Other Professional Papers Presented

i Invited Talks

“Automated Floating-Point Precision Analysis”, Dagstuhl Workshop: Analysis and Synthesis of Floating-point Programs, August 2017.

“Making Programs Run Faster: Past, Present, and Future”, United States Naval Academy, March 2017.

“Auto Tuning for Speed and Power”, UMD SC16 Booth, Salt Lake City, November 2016.

“Finding and Optimizing Phases in Parallel Programs”, Workshop on Clusters and Computational Grids for Scientific Computing, Lyon France September 2016.

“Scaling Up Autotuning”, SIAM Conference on Parallel Processing for Scientific Computation, Paris France, April 2016.

“Making Programs Run Faster: Past, Present, and Future”, James Madison University, March 2016.

“Publishing 102”, SC15 Workshop for Early Career Professionals, Nov. 2015.

“Active Harmony: Making Autotuning Easy”, Oak Ridge National Laboratory, May 2015.

“Flexible and Re-targetable Autotuning With Active Harmony”, Intel, March 2015.

- “Active Harmony: Making Autotuning Easy”, SIAM Workshop on Autotuning, February 2015.
- “Active Harmony: Autotuning for Everyone”, CGO Workshop on Autotuning, February 2015.
- “High Performance Computing: Technology, Opportunities & Dangers”, Northrup-Grumman Colloquium series, Dec. 2014.
- “Automatically Tuning Performance and Power for GPUs”, UMD/NVIDIA GPU Summit, Oct. 2014.
- “NEMO: Autotuning power and performance”, Workshop on Clusters and Computational Grids for Scientific Computing, Lyon France September 2014.
- “Flexible and Re-targetable Auto-tuning With Active Harmony”, ICS Auto-tune workshop, June 2014.
- “Friends Don’t Let Friends Tune Code”, Laboratory for Telecommunications Sciences, October 2013.
- “Getting More Auto into Autotuning”, Dagstuhl Workshop: Co-Design of Systems and Applications for Exascale, September 2013.
- “Friends Don’t Let Friends Tune Code”, University of New Mexico, November 2012.
- “Friends Don’t Let Friends Tune Code”, University of Maryland – College Park, October 2012.
- “Automatically Adapting Programs for Mixed-Precision Floating-Point Computation” – Workshop on Clusters and Computational Grids for Scientific Computing, Lyon France September 2012.
- “Friends Don’t Let Friends Tune Code”, CSCADS Workshop – Snow Bird Utah, June 2012.
- “Co-designing for Online Auto Tuning”, Dagstuhl Perspectives Workshop: Co-Design of Systems and Applications for Exascale, May 2012.
- “Friends Don’t Let Friends Tune Code”, IBM TJ Watson Research Center, April 2012.
- “Friends Don’t Let Friends Tune Code”, Technical University Munich, February 2012.
- “From Paradyn to Dyninst to *API and Beyond”, Keynote Talk Workshop on High-performance Infrastructure for Scalable Tools, June 2011.
- “Friends Don’t Let Friends Tune Code”, Argonne National Laboratory, February 2011.
- “Friends Don’t Let Friends Tune Code”, Workshop on Clusters and Computational Grids for Scientific Computing, Ashville, NC, September 2010.
- “An Embedded Dyninst”, CScADS Workshop on Tools, August 2010.
- “Runtime Instrumentation of VxWorks”, LTS, July 2010.
- “Recent Results in Auto-Tuning and Performance Tools”, SciDAC Conference, July 2010.
- “Online Adaptive Code Generation and Tuning”, Workshop on Program Development for Extreme-Scale Computing, Dagstuhl Germany, April 2010.
- “Active Harmony: Getting the Human Out of the Performance Tuning Loop”, Portland State University, November 2009.
- “Assigning Blame”, Los Alamos Computer Science Symposium, October 2009.
- “Active Harmony: Getting the Human Out of the Performance Tuning Loop”, Linux Clusters Institute Conference, March 2009.

- “Active Harmony: Online and Offline Autotuning”, SIAM Conference on Computational Science and Engineering, March 2009.
- “Towards Automated Tuning of Parallel Programs,” Korean Computer Scientists (KOCSE), annual meeting, 2008.
- “A Cloudy Future of What?”, Panel Presentation, Workshop on Clusters and Computational Grids for Scientific Computing, Ashville, NC, September 2008.
- “Experience with Automated Performance Tuning Using Active Harmony”, CScADS Workshop on Auto Tuning, July 2008.
- “Parallel Programmer Productivity”, Lawrence Livermore National Laboratory, October 2007.
- “Deep Binary Analysis and the Need for Cooperating Analyses”, Workshop on Code Instrumentation and Modeling for Parallel Performance Analysis, Dagstuhl Germany, August 2007.
- “Experience with Automated Performance Tuning Using Active Harmony”, USC Information Sciences Institute, August 2007.
- “Parallel Programmer Productivity”, San Diego Super Computing Center, July 2007.
- “Three Questions To Ask About Clusters”, Panel Presentation, Workshop on Clusters and Computational Grids for Scientific Computing 2006, Ashville, NC, September 2006.
- “Active Harmony: Getting the Human Out of the Performance Tuning Loop”, ScalPerf06 Workshop, Bertinoro, Italy, September 2006.
- “Grid Computing”, IEEE Computer Society of Northern Virginia/Washington, College Park, MD, March 2006.
- “Active Harmony: Parallel Automated Tuning of Parallel Programs”, Dagstuhl Workshop on Parallel Tools, Germany, December 2005.
- “From Hypotheses to Insight: Status of the Development Time Working Group”, HPCS Workshop talk, Seattle WA, November 2005.
- “Using Hardware Monitors to Improve Data Placement on NUMA Shared Memory Systems”, Los Alamos Computer Science Institute (LACSI) Workshop on Performance and Productivity of Extreme Scale Systems, Santa Fe, NM, October 2005.
- “EMPS: An Environment for Memory Performance Studies”, Next Generation Software Workshop, Denver, CO, April 2005.
- “Hardware Performance Monitors: Beyond Counting Events”, Workshop on Clusters and Computational Grids for Scientific Computing, Le Chateau de Faverges de la Tour, France, September 2004.
- “Active Harmony: Towards Automated Performance Tuning”, LBL Workshop on Performance, Oakland, CA May 2004.
- “Runtime Binary Modification Tools”, IDA CCS, Bowie Maryland, December 2003.
- “Bug Driven Bug Finders”, Dagstuhl Workshop on Program Dynamics, Germany, December 2003.
- “Opportunities and Challenges in Automatic Performance Tuning”, Apart Workshop, November 2003.
- “Runtime Binary Modification Tools”, Cigital Corporation, Virginia, October 2002.

- “Active Harmony: Towards Automated Performance Tuning”, Workshop on Clusters and Computational Grids for Scientific Computing, Le Chateau de Faverges de la Tour, France, September 2002.
- “Runtime Code Modification Tools”, Blekinge Institute of Technology, Sweden, May 2002.
- “Runtime Code Modification Tools”, MITRE Corporation, April 2002.
- “Instrumentation and Performance Analysis for Finding Memory Bottlenecks”, LACSI Workshop on Tools for Performance Analysis of large Scale Applications, October 2001.
- “Using Hardware Performance Monitors to Isolate Memory Bottlenecks”, Sun Microsystems, Feb. 2001.
- “Using Hardware Performance Monitors to Isolate Memory Bottlenecks”, IBM Austin, Mar. 2001.
- “Σ: Simulation Guided Measurement and Analysis”, IBM T. J. Watson Research Center, January 2001.
- “Σ: Simulation Guided Measurement and Analysis”, Universität Karlsruhe, December 2000.
- “Runtime Program Evolution”, US-Venezuela Workshop on High Performance Computing, Puerta La Cruz, Venezuela, April 2000.
- “Active Harmony: A framework for Adaptable Adaptations”, Microsoft Research, February 2000.
- “Runtime Program Evolution”, National Security Agency, February 2000.
- “Dyninst and Active Harmony: Evolving Programs During Execution”, Apart Workshop, November 1999.
- “Dyninst and DPCL”, Lawrence Livermore National Laboratory, November 1999.
- “Dyninst and DPCL”, Los Alamos National Laboratory, July 1999.
- “Application Binaries: Management and Manipulation”, Georgia Tech, Oct. 1998.
- “Linger-Longer: Fine-Grain Cycle Stealing for Networks of Workstations”, NAS Workshop on Performance Engineered Systems, NASA Ames, Sept. 1998.
- “Content-Derived Names: Automatic Management of Multiple Versions of Software Libraries”, Microsoft Research, Sept. 1998.
- “Content-Derived Names: Automatic Management of Multiple Versions of Software Libraries” at Workshop on Clusters and Computational Grids for Scientific Computing, Knoxville, TN. Sept. 1998.
- “Online ‘what-if’ metrics” at Technische Universität München, June 1998.
- “Management of Critical Systems”, Panel on Critical Systems at Configurable Distributed Systems Conference, Annapolis, May 1998.
- “Content-Derived Names: Automatic Management of Multiple Versions of Software Libraries” at Korea-U.S. Science & Technology Symposium, Chicago, April 1998.
- “Tools to Help Parallel Programmers Evaluate Tuning Alternatives” at Sun Microsystems, Mountain View CA, Nov. 1997.
- “Tools to Help Parallel Programmers Evaluate Tuning Alternatives” at NASA Ames Research Center, Moffit Field CA, Sept. 1997.
- “Instrumentation and Measurement”, at the Workshop on Building a Computational Grid, Argonne National Labs, Sept. 1997.
- “Online ‘what-if’ Metrics” at Johns Hopkins Medical Center, Baltimore, MD, April 1997.

“Internet: The Technology behind the Hype”, Mathematics Department, University of Maryland, April 23, 1997.

“Online ‘what-if’ Metrics” at University of Wisconsin, Madison, WI, Feb. 1997.

“Tuning the Performance of I/O Intensive Parallel Applications” at Information Sciences Institute, Marina Del Rey, CA, Jan. 1996.

“Performance Debugging of Parallel and Distributed Systems” at Hughes Networking Systems, Germantown, MD, Dec. 1995.

“Paradyn Parallel Performance Tools” at IBM T. J. Watson Research Center, Yorktown Heights, NY, Sept 1995.

“Online Semi-automatic Performance Debugging”, at SIGMETRICS '95 Hot topics panel session, Ottawa, Canada, May 1995.

“Performance Tools for Large Scale Parallel Computers” at Brown University, Providence, RI, April 1993.

“Performance Tools for Large Scale Parallel Computers” at Center for High Performance Computing, Marlborough, MA, April 1993.

“The IPS-2 Parallel Performance Monitoring Tools” at Informix Inc., Portland, OR, January 1992.

“Parallel Programming Tools” at the Conferencia Internacional de Computación Avanzada, Viña del Mar, Chile, October 1991.

i Contracts and Grants

- “Dyninst on GPUs”, IBM collaborative research award, Dec. 2016 (\$132,000).
- “CASPER: Combined Adaptive Sensing for Pervasive Event Reconstruction”, DARPA (sub-contractor to Applied Communication Sciences), Principal Investigator, Jan 2016-Jan 2019, \$615,000.
- “PIPER: Performance Insight for Programmers and Exascale Runtimes”, Department of Energy, Principal Investigator, August 2013 – August 2017, \$704,799.
- “Sustained Performance, Energy, and Resilience (SuPER)”, *Department of Energy*, Principal Investigator, October 2011 – September 2017, \$1,075,000.
- “Runtime evolution to enable high performance computing”, Principal Investigator, LTS, \$623,662, April 5, 2013 – Sept 30, 2017.
- “Performance Engineering Research Institute SciDAC-e Augmentation: Performance Enhancement of Simulating the Dynamics of Photo-excitation for Solar Energy Conversion”, *Department of Energy*, Principal Investigator, Aug 2010 – December 2012, \$150,000.
- “Tools for the Development of High-Performance Energy Applications” (renewal), *Department of Energy*, Principal Investigator, Aug 2009 – July 2013, \$578,000.
- “Foundational Tools for Petascale Computing”, *Department of Energy*, \$450,000, Principal Investigator, August 2009-July 2013.
- “Correctness Tools for Petascale Computing”, *Department of Energy*, \$984,000 (UMD share 324,000), Principal Investigator, August 2009-July 2013.
- “Building a Community Infrastructure for Scalable On-Line Performance Analysis Tools Around Open SpeedShop”, *Department of Energy*, \$225,000, Principal Investigator, August 2009-July 2013.
- “Porting Dyninst to VxWorks”, Principal Investigator, LTS, \$322,059, Jan 2010- Jan 2013.
- “Performance Engineering Research Center (PERC-3)”, *Department of Energy*, Principal Investigator, October 2006 – December 2012, \$1,200,000.
- “Support for Ongoing Work Towards Open Binary Editing Environments” *Los Alamos National Laboratory*, June 2006- August 2006, \$27,000.
- “Tools for the Development of High-Performance Energy Applications” (renewal), *Department of Energy*, Principal Investigator, January 2006 – July 2009, \$845,000.
- “Dynamic Instrumentation API Development & Evaluation” (renewal), *Lawrence Livermore National Lab*, Principal Investigator, July 2005 – May 2006, \$65,000.
- “Empirical Studies for High Performance Computing,” *AFSRC*, Co-Principal Investigator (with Basili and Zelkowitz), March 2005 – March 2008, \$900,000.
- “Performance Measurement & Modeling of Deep Hierarchy Systems,” *National Science Foundation*, Principal Investigator, August 2004- July 2008, \$800,000.
- “High-End Computer System Performance Science and Engineering” (renewal), *Department of Energy*, Principal Investigator, September 2004 – September 2006, \$550,000.
- “Empirical Studies for High Performance Computing,” *NASA Ames*, Co-Principal Investigator, June 2004- November 2004, \$150,000.
- “SUR Grant: IBM Power 8-way Multi-processor Server”, *IBM Corporation*, Aug 2003, \$400,000.

“Tools for the Development of High-Performance Energy Applications”, *Department of Energy*, Principal Investigator, September 2002 – December 2005, \$784,636.

“Dynamic Instrumentation API Development & Evaluation” (renewal), *Lawrence Livermore National Lab*, Principal Investigator, May 2002 – September 2005, \$150,000.

“A Cross-platform Infrastructure for Scalable Runtime Application Performance Analysis”, *Department of Energy*, Principal Investigator, September 2001-March 2005, \$464,572.

“High-End Computer System Performance Science and Engineering”, *Department of Energy*, Principal Investigator, September 2001 – September 2005, \$770,913.

“System Support for Enterprise Application Servers”, *National Science Foundation*, Co-Principal Investigator, September 2000 – August 2004, \$861,000.

“High Performance Systems for Shape & Action Modeling”, *National Science Foundation*, Co-Principal Investigator, September 1999-August 2002, \$1,096,011.

“Tools for the Development of High-Performance Energy Applications”, *Department of Energy*, Principal Investigator, August 1999 – September 2002, \$747,634.

“Dynamic Instrumentation API Development & Evaluation”, *Lawrence Livermore National Lab*, Principal Investigator, May 1999 – May 2002, \$125,000.

“Distributed Performance Evaluation”, *NIST*, Principal Investigator, Sept 1998 - Sept 2000, \$199,000.

“Active Harmony: Dynamic Resource Management in the Large”, *National Science Foundation*, Principal Investigator (with P. Keleher), Sept. 1997 - Aug. 2001, \$200,000.

“Performance Prediction and Modeling of Computer and Data Intensive Applications on Current and Future Higher Performance Architectures”, *DARPA*, Co-Principal Investigator (with J. Saltz and A. Argawala), April 1997 - September 1999, \$1,400,000.

“Online Measurement, Evaluation and Adaptation of Parallel Applications”, *National Science Foundation*, Principal Investigator, March 1997 - February 2002, \$243,000.

“Dynamic Resource Management”, *NSA*, Principal Investigator (with P. Keleher), March 1997 - Aug 2001, \$250,000.

“Tools for the Development of High-Performance Energy Applications”, *Department of Energy*, Principal Investigator, September 1996 – September 1999, \$223,085.

“Performance Monitoring of I/O Intensive Parallel Applications”, *General Research Board of Graduate Studies and Research, University of Maryland*, Principal Investigator, June 1995 - September 1995, \$6,250.

“Performance Monitoring of I/O and Compute Intensive Applications”, *National Institutes of Standards and Technology*, Principal Investigator (with J. Saltz), May 1995 - December 1996, \$83,000.

j Fellowships, Prizes and Awards

Best Poster Finalist – SC’13
Best Paper (Software) – IPDPS, 2011
Best Paper by a Student Lead Author, SC’2005
Senior Member IEEE, 2003
IBM Faculty Partnership Award, 2001
Best Paper (Software) – IPDPS, 2000
Computer Science Department Teaching Award, 1998
NSF Faculty Early Career Development Award, 1997-2002
ARPA Fellowship in High Performance Computing, 1993-1994
International Information Science Foundation Travel Fellowship, 1993

k Editorial Boards and Reviewing Activities for Learned Publications**Professional Boards**

SC Conference Steering Committee, 2009-2014
Computing Research Association (CRA), 2008-2010

Editorial Boards

Editor In Chief, *Parallel Computing*, 2009-2017
Editorial Advisory Board, *Scientific Computing*, 2013-2014
North American Editor, *Parallel Computing*, 2005-2009

Reviewing Activities

AADEBUG 2005
ACM Computing Surveys
ACM Transactions on Computer Systems
ACM Transactions on Software Engineering
HPCC, 2007, 2006-2008
ICSE, 2005-2006
Europar 1998-2004, 2008
IEEE Communications
IEEE Computer
IEEE Parallel and Distributed Technology
IEEE Transactions on Parallel and Distributed Systems
IPDPS, 1999-2001, 2004-2005
International Parallel Processing Symposium, 1994, 1998
ICPP, 2013
Journal of Supercomputing Applications
PLDI, 2006
Software Practice and Experience

Supercomputing, 1993-05

Symposium on Parallel and Distributed Systems, 1996-8

SIGMETRICS 1995-8

SPAA '97

1 Software Distributions

- **Active Harmony:** An environment for creating adaptable, self tuning parallel programs.
- **Dyninst:** A C++ class library for platform independent runtime executable editing. Released on the Internet, and licensed by IBM and in negotiation with several other companies to commercialize it.
- **Grindstone:** A test suite for debugging and benchmarking parallel performance tools. Released on the Internet, and in used by several tools projects in the United States and Europe.
- **START:** A web based paper submission and review package. Used by to manage paper reviews for more than 40 research conferences in the US and internationally.

3. TEACHING AND ADVISING

a Courses

ii Specialized Courses

Semester	Course	# students	Description
Fall, 1994	CMSC 311	45	Computer Organization
Spring, 1995	CMSC 818J	25	Tools for Parallel Computing
Fall, 1995	CMSC 311	77	Computer Organization
Spring, 1996	CMSC 412	37	Operating Systems
Fall, 1996	CMSC 818Z	20	Introduction to Parallel Computing*
Spring, 1997	CMSC 417	31	Computer Networks*
Fall, 1997	CMSC 417	30	Computer Networks
Spring, 1998	CMSC 412	30	Operating Systems
Spring, 1999	CMSC 818Z	15	Introduction to Parallel Computing
Fall, 1999	CMSC 417	28	Computer Networks
Spring, 2000	CMSC 714	12	High Performance Computing
Fall, 2001	CMSC417	45	Computer Networks
Spring, 2002	CMSC412	50	Operating systems
Fall, 2002	CMSC714	12	High Performance Computing
Spring, 2003	CMSC412	40	Operating systems
Fall, 2003	CMSC714	16	High Performance Computing
Spring, 2004	CMSC412	55	Operating systems (two sections)
Spring, 2005	CMSC212	30	Introduction to System Programming*
Fall, 2006	CMSC714	18	High Performance Computing
Spring, 2007	CMSC212	52	Introduction to System Programming

Fall, 2008	CMSC714	28	High Performance Computing
Spring 2010	CMSC412	40	Operating systems
Fall 2010	CMSC714	29	High Performance Computing
Fall 2011	CMSC412	37	Operating systems
Spring 2013	CMSC818P	15	Exascale Computing
Spring 2014	CMSC412	25	Operating systems
Fall 2015	CMSC714	29	High Performance Computing
Spring 2016	CMSC412	47	Operating systems
Spring 2017	CMSC412	33	Operating systems

* New Course Development

iv Independent Studies

Semester	Course	# students	Description
Spring, 1995	CMSC 386	1	Experiential Learning
Fall, 1995	CMSC 386	3	Experiential Learning
Spring, 1996	CMSC 386	4	Experiential Learning
Fall, 1996	CMSC 386	3	Experiential Learning
Spring, 1997	CMSC 818A	2	Advanced Operating Systems
Fall, 1997	CMSC 899	4	Topics in Parallel Computation
Spring, 1998	CMSC 899	4	High Performance Distributed Computing
Fall, 1999	CMSC 899	4	Topics in High Performance Computing
Spring, 1999	CMSC 899	3	Topics in Distributed Computing
Fall, 1999	CMSC 899	5	Topics in Distributed Computing
Spring, 2000	CMSC 899	5	Topics in Distributed Computing
Fall, 2001	CMSC 899	4	Topics in Distributed Computing
Spring, 2002	CMSC 899	4	Topics in Distributed Computing
Fall, 2002	CMSC 899	4	Topics in Distributed Computing
Spring, 2003	CMSC 899	4	Topics in Distributed Computing
Fall, 2003	CMSC 899	4	Topics in Distributed Computing
Spring, 2004	CMSC 899	4	Topics in Distributed Computing
Fall, 2004	CMSC 899	4	Topics in Distributed Computing
Spring, 2005	CMSC 899	4	Topics in Parallel Computing
Fall, 2005	CMSC 899	4	Topics in Parallel Computing
Spring, 2006	CMSC 899	4	Topics in Parallel Computing
Fall, 2006	CMSC 899	4	Topics in Parallel Computing
Spring, 2007	CMSC 899	3	Topics in Parallel Computing
Fall, 2007	CMSC 899	3	Topics in Parallel Computing
Spring, 2008	CMSC 899	3	Topics in Parallel Computing
Fall, 2008	CMSC 899	3	Topics in Parallel Computing

Spring, 2009	CMSC 899	3	Topics in Parallel Computing
Fall, 2009	CMSC 899	4	Topics in Parallel Computing
Spring, 2010	CMSC 899	4	Topics in Parallel Computing
Fall, 2010	CMSC 899	5	Topics in Parallel Computing
Spring 2011	CMSC 899	5	Topics in Parallel Computing
Fall 2011	CMSC 899	3	Topics in Parallel Computing
Spring 2012	CMSC 899	4	Topics in Parallel Computing
Fall 2012	CMSC 899	4	Topics in Parallel Computing
Spring 2013	CMSC 899	4	Topics in Parallel Computing
Fall 2013	CMSC 899	4	Topics in Parallel Computing
Spring 2014	CMSC 899	4	Topics in Parallel Computing
Spring 2015	CMSC 898	3	Topics in Parallel Computing
Fall 2015	CMSC 898	4	Topics in Parallel Computing
Spring 2016	CMSC 898	4	Topics in Parallel Computing
Fall 2016	CMSC 898	4	Topics in Parallel Computing

b Course or Curriculum Development

CMSC 212 – Introduction to Systems Programming (2005)

Developed this new course from scratch. Selected textbook, developed syllabus, created projects (and reference solutions), and developed Powerpoint slides for all lectures. Materials have already been used by multiple other instructors to teach the course.

CMSC 311 - Computer Organization (1994)

Added a programming project and development of WWW pages with complete lecture notes and problems sets. Problem sets, lecture notes, and WWW pages have been used every semester.

CMSC 412 - Operating Systems (1996 & 2002)

Created WWW pages for lecture notes and project materials. Developed a new project based on using bocks x86 simulator. The project includes new assignments on memory management (and paging), file systems, and interposes communication. New project materials have been used by two faculty at UMD and several faculty at other universities.

CMSC 417 - Computer Networks (1997)

Completely revamped this course. Adopted a new text book, created lecture materials including WEB content for each lecture. Created a semester long programming project that requires students to design and implement a network protocol stack including a simulated IPv6 network layer and a reliable transport protocol. The project is intended to foster both design and implementation skills. As a result, the project description is intentionally vague and requires students to define many of their interfaces and select between multiple implementation options. Students work in small teams and are required to write both preliminary and revised design documents.

CMSC 818Z (now CMSC 714) - Introduction to Parallel Computing (1996)

Created a new course to provide first year graduate students with a broad introduction to parallel computing including computer architecture, system software, compilers, and tools. The class combines readings from a textbook with recent and seminal papers from

the field. In addition, students work in teams to develop a mini-research project in the area of parallel computing. The project requires the students to define a problem, research it, implement or simulate their solution, quantitatively evaluate their results, and present their findings in a written paper and orally at an end of semester mini-conference.

CS Intro Course Sequence Committee – (2003-2006)

Worked with several other colleagues to develop three new introductory computer science courses. We developed new syllabi, selected books, designed projects, and developed lecture material. In addition, I developed a new web-based computer system to allow recording of grades, secure student access to view their grades, and support the workflow of grading and re-grading assignments.

c Other Contributions to Teaching

Developed a web-based grading system (grades.cs.umd.edu) that allows automation of grading, returning, and re-grading assignments for Computer Science courses.

Created the *DSSL (Distributed Systems Software Laboratory)* - a dual use (instruction and research) laboratory that uses COTS (Commodity Off The Shelf) hardware and software for parallel and distributed computation. The lab is equipped with ten dual processor AMD machines and ten Intel Pentium family machines with 100 Mb Ethernet and 1.2 Gbps Myrinet links connecting the machines to each other and to the parallel computing resources of the Institute for Advanced Computer Studies. To date this lab has been used to support four senior honors projects, several graduate classes, and the research activities of four faculty members and over two dozen graduate students. The lab is supported with financial and in-kind donations from the Computer Science Department, UMIACS, AITS, NSF and Microsoft.

e Advising: Non-research Direction

ii Graduate (Ph.D. Committees)

Sheng-Tzong (Steve) Cheng, 1995

Wayne Kelly, 1996

Seonho Choi, 1997

Ladan Gharai, 1998

Björn P. Jónsson, 1998

Sung Lee, 1998

Evan Golub, 1999

Tatiana Shpeisman, 1999

Mustafa Uysal, 1999

Mohamed Aboutabl, 1999

Kritchalach Thitikamol, 2000

Chialin Chang, 2001

Magnus Broberg (Blekinge Institute of Technology, Sweden) – Opponent, 2002

Dejan Perkovic, 2002

Neal Kumar Bambha, 2004

David Hovemeyer, 2005

Vida Kianzad (ECE), 2006

Lorin Hochstein, 2006

Jaime Spacco, 2006

Beomeok Nam, 2007

Taiga Nakamura, 2007
Nick L. Petroni, 2007
Shang-Chieh J Wu, 2008
Hsiang-Huang Wu, 2013

ii **Graduate (M.S. Committees)**

Ryan Blue, 2009

f **Advising: Research Direction**

i **Undergraduate**

Vanessa Heppo (honors thesis, “Device Driver optimization”) 1995-1996.
Marshall Pratt (honors thesis, “Instrumenting the Windows 95 Filesystem”), 1995-1996.
Michael Steele (honors thesis, “Grindstone: A Test Suite for Parallel Performance Tools”) 1996.
Dave Ross (honors thesis, “Measuring the Performance of the NTFS Filesystem”) 1996-1997.
Chester Lam, 2012-2015

ii **Masters**

Li Zhang, 1995-1996
Ramu Arunachalam, 1996-1998
Cristian Tapus, 1999-2001
Jeffrey Odom, 2004-2006
Rola Alameh, 2006-2007
Jessica Seastrom, 2007-2008
Yifan Zhou, 2012-2013

ii **Doctoral**

Dong-In Kang (co-advisor with R. Gerber), 1999
Thesis: “Automated Design Techniques for Distributed Real-Time Embedded Systems”
Kyungdong Ryu, 2001
Thesis: “Exploiting Idle Cycles in Networks of Workstations”
Bryan R. Buck, 2004
Thesis: “Applying Hardware and Software Instrumentation to the Measurement of Cache Behavior”

- I-Hsin Chung, 2004
Thesis: “Towards Automatic Performance Tuning”
- Mustafa Tikir, 2005
Thesis: “Using Hardware Monitors to Automatically Improve Memory Performance”
- Chadd Williams, 2006
Thesis: “Using Historical Data From Source Code Revision Histories to Detect Source Code Properties”
- Ananta Tiwari, 2011
Thesis: “Tuning Parallel Application in Parallel”
- Nick Rutar, 2011
Thesis: “Foo's To Blame: Techniques For Mapping Performance Data To Program Variables”
- Tugrul Ince, 2013
Thesis: “Compilation and Binary Editing for Performance and Security”
- Michael Lam, 2014
Thesis: “Automated Floating-Point Precision Analysis”
- Geoffrey Stoker, 2014
Thesis: “Analyzing the Combined Effects of Measurement Error and Perturbation”
- Ray Chen, 2012 to present
- Hui Zhang, 2014 to present
- Richard B. Johnson, 2015 to present
- Yoav Segev, 2015 to present

Postdoctoral

- Vahid Tabatabaee 2004-2006
Broadcom
- Loren Hochstein 2006-2007
Netflix
- Sukhyun Song 2012-2015
Google

4. SERVICE

a Professional

ii Unpaid reviewing activities for agencies

- NSF XSEDE external review panel 2015, 2017
Proposal reviewer, NSF 1995-2005, 2008.
DOE Proposal reviewer, 2003, 2005, 2007, 2011-14.
DOE Site Review Team, Argonne National Lab, 2009.
DOE SCiDAC Project Review Team, 2009.

iv Other non-University Panels

Chair ACM SIGHPC, 2016-
General Chair PPOPP, 2019
External Advisory Committee Computer Science and Mathematics Division (CSMD),
Oak Ridge National Laboratory, 2015-
Hyperion Research, HPC Technical Computing Advisory Panel, 2017-
Computing Research Association, Government Affairs Committee, 2016-
UMD-JHU HPC Center Committee, 2012-2017
Vice Chair ACM SIGHPC, 2012-2016
Tech Papers Chair, IPDPS'16
ACM Future of SIGs Committee, 2014-2015
Organizing Committee, SIAM Parallel Processing 2014
Test of Time Paper Review Committee, SC13, SC14
ACM Student Research Competition Judge, ICS'13
Steering Committee Chair, SC Conference 2013
General Chair, SC12 (approximately 10,000 attendees)
Deputy General Chair, SC11
Program Committee, ICPP'11 & ICPP'13
Program Committee, ICS'11
Program Committee, IPDPS'11
Program Committee, PPOPP 2010
Program Committee, PACT 2015
Program Committee, SC10, SC14
Organizing Committee, SC'2002, SC'04, SC'06, SC10
Finance Chair, SC'09 (managed budget of \$6.5 million)
Co-Organizer, Workshop on Binary Instrumentation and Analysis 2009.
Program Committee, WODA 2009
Birds of a Feather Chair, SC'08
Program Committee, ICPP'08
Doctoral Showcase Chair, SC'07
Technical Program Chair, SC'06
Program Committee, HPCC'06
Program Committee, HPDC'05
Program Committee, AADEBUG'05
Program Committee, IPDPS 2001, 2003, 2005
Program Committee, SC'00, SC'04, SC'05
Program Committee, The Grid Workshop'05
Program Committee, EuroPar'04
Co-Chair Masterworks (invited talks), SC'04
Track General Chair, EuroPAR'03

Program Committee, Feedback-Directed Optimization workshop 2000
Program Committee, Dynamo'00
Program Committee, 1999 International Conference on Parallel Processing.
Tutorial Program Committee, SC'98, SC'99
Program Committee Chair, 1998 ACM Symposium on Parallel and Distributed Tools
Program Committee, 1998 IEEE Real-Time Systems Symposium
Proceedings Chair, 1996 ACM Symposium on Parallel and Distributed Tools
National Science Foundation Panels, 1995, 1999, 2001-2005, 2009
Department of Energy, SCiDAC Program Review Panel, 2009
DOE ASCR Exascale Computing Systems Productivity Workshop, Organizing committee, 2014

b University**i Department**

Co-chair Space Committee (New Building), 2014-2017
Chair Computing Committee, 2014-17
Department Council, 2001-2002, 2006-2007, 2013-2014
Computing Committee, 2013-14
Graduate Admissions Committee, 2013
Computing Needs Survey, 2012-2013
Chair, Undergraduate Scholarships and Awards Committee, 2008-2012
Director, UMIACS Center for Human Enhanced Secure Systems (CHESS), 2004-2006
UMIACS APT Committee, 2004-2005
Managed Access Gird Room Renovations and Installation, 2005
Teaching Evaluation Committee, 2004-05
Graduate Student Placement Committee, 2004-2005
Space Utilization Committee, Chair, 2004
Committee to Revise Intro Programming Courses, 2003-2005
Department Representative to Student Honor Council, 2004
Graduate Student Admissions Committee, 2004
Department Liaison to Construction Team for Building Addition, 1999-2004
Steering Committee Center for Computational Science and Mathematical Modeling, 1999-2001
Chair Computing Facilities Committee, 1998-1999
Lecture to student ACM Chapter, "Internet: The Technology Behind the Hype", 1997.
Graduate Admissions Committee, 1997.
Computing Facilities Committee, 1994-1999, 2001-2002
Search Committee for Director of Computing Facilities, 1997.
Search Committee for Research Programmer, 1995-1997
Director 6th Annual High School Programming Contest, 1996
Coordinated Graduate Orientation, 1995.

Judge Annual High School Programming Contest, 1995-1998.

ii **College**

CMNS Dean Search Committee, 2017 (resigned in June 2017)

Associate Dean Search Committee, 2009

Appointments, Promotions & Tenure Committee, 2006-2007.

ii **Campus**

UMCP President's Cabinet, 2017-

ERP Replacement Committee (co-chair), 2017-

University Senate, Ex-officio Member, 2017-

UMCP Finance Committee, 2017-

UMCP Facilities Committee, 2017-

UMCP Research Oversight Committee, 2017-

Chair, Research Computing Committee, 2014-2017

IT Council, 2015-2017

Cyber Security Ad-hoc Committee, 2014

Faculty Board, New General Education Program, 2011-2012

Provost's Committee on Undergraduate Retention, 2010

Teaching Facilities Standards Committee, 2010

c **Community**

University of Maryland, College Park Foundation, Ex-officio Trustee, 2017-

Board of Directors, Habitat for Humanity of Metro Maryland, 1995-2007, 2008-
Chair of the board (2005-2007, 2013-2017)

Board of Trustees, River Road Unitarian Church, 2003-2006
Chair of the board (2005-2006)

Board of Directors, Interfaith Housing Partnership, 1998-2000.

I certify this CV is accurate and complete – April 26, 2018

Jeffrey K. Hollingsworth