CURRICULUM VITAE
PETER J. KELEHER

DEPARTMENT OF COMPUTER SCIENCE
INSTITUTE FOR ADVANCED COMPUTER STUDIES

THE UNIVERSITY OF MARYLAND
COLLEGE PARK
OCTOBER 10, 2023

1 Personal Information

Associate Professor, University of Maryland.
Computer Science Department.
Appointed December, 1994.

1.1 Research

My current research centers on security architectures for dynamic and ad-hoc collaboration in distributed environments. Collaborators can often be classified into various *roles*, which can then be used to drive generation of appropriate *rights* (in the form of fine-grained capabilities) for the relevant data. Tight integration of the security architecture with the underlying meta-data dissemination prevents information leakage despite gossip-based communication. We are currently building `T.Rex`, an object sharing system that embodies the above ideas.

1.2 Education

- Ph.D. in Computer Sciences
  Rice University, May 1995
  Dissertation title: Lazy Release Consistency for Distributed Shared Memory
  Supervisor: Willy Zwaenepoel

- Master of Science in Computer Sciences
  Rice University, May 1993

- Bachelor of Science in Electrical Engineering
  Rice University, May 1986

1.3 Employment

7/01 to present	Associate Professor	University of Maryland, College Park
12/94 to 7/01	Assistant Professor	University of Maryland, College Park
1/89 to 12/94	Research Assistant	Rice University

8/88 to 5/90	Teaching Assistant
	Rice University
6/86 to 8/88	Software Engineer
	General Dynamics
9/87 to 5/88	Programmer/Analyst
	Rice University

2 Research, Scholarly, and Creative Activities

2.1 Books Edited

1. "The 2nd Annual Workshop on Software Distributed Shared Memory," *Lecture Notes in Computer Science*, Springer-Verlag, 2002.

2.2 Chapters in Books

1. "Reducing Synchronization overhead for Compiler-Parallelized Codes on Software DSMs," Hwansoo Han, Chau-Wen Tseng and Pete Keleher. In *Languages and Compilers for Parallel Computing, Tenth International Workshop, (Z. Li et al., eds.), Lecture Notes in Computer Science, Springer-Verlag*, 1997.

2. "Communication-Intensive Parallel Applications and Non-Dedicated Environments," Kritchalach Thitikamol and Pete Keleher. In *The 3rd Workshop on Runtime Systems for Parallel Programming (RTSPP), Lecture Notes in Computer Science, Springer-Verlag*, 1999.

3. "Resource-Aware Meta-Computing," Jeffrey K. Hollingsworth, Pete Keleher and Kyung D. Ryu. In *Advances in Computers, edited by Marvin V Zelkowitz, Academic Press*, 53:110-171, 2000.

4. "Thread Migration and Load Balancing in Heterogeneous Environments," Kritchalach Thitikamol and Pete Keleher. In *5th Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers, (S Dwarkadas, ed.), Lecture Notes in Computer Science, Springer-Verlag*, 2000.

2.3 Articles in Refereed Journals

1. "Parallelization of General Linkage Analysis Problems," S. Dwarkadas, A. Schaffer, P. Keleher, R. Cottingham Jr., A. Cox and W. Zwaenepoel. In *Human Heredity*, 115-131, 1994.

2. "An Evaluation of Software-Based Release Consistent Protocols," Pete Keleher, Alan L. Cox, Sandhya Dwarkadas and Willy Zwaenepoel. In *The Journal of Parallel and Distributed Computing (JPDC)*, 29:1995.

3. "TreadMarks: Shared Memory Computing on Networks of Workstations," C. Amza, A. Cox, S Dwarkadas, P Keleher, H Lu, R. Rajamony, W. Yu and W. Zwaenepoel. In *IEEE Computer*, 1996.

4. "Per-Node Multi-Threading and Remote Latency," Kritchalach Thitikamol and Pete Keleher. In *IEEE Transactions on Computers (IEEE-TOCS)*, 47:414-426, 1998.

5. "Eliminating Barrier Synchronization for Compiler-Parallelized Codes on Software DSMs," Hwansoo Han, Chau-Wen Tseng and Pete Keleher. In *International Journal of Parallel Programming*, 26:591-612, 1998.

6. "Thread Migration and Communication Minimization in DSM Systems," Kritchalach Thitikamol and Pete Keleher. In *The Proceedings of the IEEE*, 87:487-497, 1999.

7. "Update Protocols and Cluster-based Shared Memory," Pete Keleher. In *Computer Communications*, 22:1045-1055, 1999.

8. "Prediction and Adaptation in Active Harmony," Jeffrey K. Hollingsworth and Pete Keleher. In *Cluster Computing: The Journal of Networks, Software Tools and Applications*, 1:195-205, 1999.

9. "A Protocol-Centric Approach to On-The-Fly Race Detection," Dejan Perkovic and Pete Keleher. In *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 11:1058-1072, 2000.

10. "Consistency Management in Deno," Pete Keleher and Ugur Cetintemel. In *The Journal on Special Topics in Mobile Networks and Applications (MONET)*, 5:299-309, 2000.

11. "The Impact of Symmetry on Software Distributed Shared Memory," Pete Keleher. In *The Journal of Parallel and Distributed Computing (JPDC)*, 60:1388-1419, 2000.

12. "Attacking the Bottlenecks in Backfilling Schedulers," Pete Keleher, Dmitry Zotkin and Dejan Perkovic. In *Cluster Computing: The Journal of Networks, Software Tools and Applications*, 3:2000.

13. "A High-Level Abstraction of Shared Accesses," Pete Keleher. In *The ACM Transactions on Computer Systems (TOCS)*, 18:1-36, 2000.

14. "Light-Weight Currency Management Mechanisms in Mobile and Weakly-Connected Environments," Ugur Cetintemel and Pete Keleher. In *The Journal of Distributed and Parallel Databases (JDPD)*, 11:53-71, 2002.

15. "Deno: A Decentralized, Peer-to-Peer Object Replication System for Mobile and Weakly-Connected Environments," U. Cetintemel, P. J. Keleher, B. Bhattacharjee and M. J. Franklin. In *IEEE Transactions on Computers (TOC)*, 52:2003.

16. "Trade-offs in Matching Jobs and Balancing Load for Distributed Desktop Grids," Jik-Soo Kim,Beomseok Nam,Peter Keleher,Michael Marsh,Bobby Bhattacharjee,Alan Sussman. In *Future Generation Computer Systems*, 24:415-424, 2008.

17. "Decentralized Multi-attribute Range Search for Resource Discovery and Load Balancing," Jaehwan Lee, Pete Keleher and Alan Sussman. In *Journal of Supercomputing*, 2014.

18. "Exploiting Multi-core Nodes in Peer-to-Peer Grids," Jaehwan Lee, Pete Keleher and Alan Sussman. In *JPDC*, 2014.

2.4 Articles in Refereed Conferences

1. "Lazy Release Consistency for Software Distributed Shared Memory," Pete Keleher, Alan L. Cox and Willy Zwaenepoel. In *Proceedings of the 19th International Symposium of Computer Architecture (ISCA)*, 13-21, 1992.

2. "Evaluation of Release Consistent Software Distributed Shared Memory on Emerging Network Technology," Sandhya Dwarkadas, Pete Keleher, Alan L. Cox and Willy Zwaenepoel. In *Proceedings of the 20th International Symposium of Computer Architecture (ISCA)*, 244-255, 1993.

3. "Network Multicomputing Using Recoverable Distributed Shared Memory," J. Carter, A. Cox, S. Dwarkadas, D. Johnson, P. Keleher, M. Elnozahy, S. Rodrigues, W. Yu and W. Zwaenepoel. In *Proceedings of the 1993 COMPCON*, 1993.

4. "Software Versus Hardware Shared-Memory: A Case Study," Alan L. Cox, Sandhya Dwarkadas, Pete Keleher, Honghui Lu, Ramakrishnan Rajamony and Willy Zwaenepoel. In *Proceedings of the 21st Annual International Symposium of Computer Architecture (ISCA)*, 106-117, 1994.

5. "TreadMarks: Distributed Shared Memory on Standard Workstations and Operating Systems," Pete Keleher, Alan L. Cox, Sandhya Dwarkadas and Willy Zwaenepoel. In *The 1994 Winter USENIX Conference*, 1994.

6. "Enhancing Software DSM for Compiler-Parallelized Applications," Pete Keleher and Chau-Wen Tseng. In *The 11th International Parallel Processing Symposium (IPPS)*, 1996.

7. "The Relative Importance of Concurrent Writers and Weak Consistency Models," Pete Keleher. In *The 16th International Conference on Distributed Computing Systems (ICDCS)*, 1996.

8. "Online Data-Race Detection via Coherency Guarantees," Dejan Perkovic and Pete Keleher. In *The Second Symposium on Operating Systems Design and Implementation (OSDI)*, 1996.

9. "Multi-Threading and Remote Latency in Software DSMs ," Kritchalach Thitikamol and Pete Keleher. In *The 17th International Conference on Distributed Computing Systems (ICDCS)*, 1997.

10. "Update Protocols and Iterative Scientific Applications," Pete Keleher. In *The 12th International Parallel Processing Symposium (IPPS)*, 1998.

11. "Locality and Performance of Page- and Object-Based DSMs," Bryan Buck and Pete Keleher. In *The 12th International Parallel Processing Symposium (IPPS)*, 1998.

12. "Prediction and Adaptation in Active Harmony," Jeffrey K. Hollingsworth and Pete Keleher. In *The 7th International Symposium on High Performance Distributed Computing (HPDC)*, 1998.

13. "General Data Streaming," Frank W. Miller, Pete Keleher and Satish K. Tripathi. In *The 19th IEEE Real-Time Systems Symposium (RTSS)*, 1998.

14. "Tapeworm: High-Level Abstractions of Shared Accesses," Pete Keleher. In *The 3rd Symposium on Operating Systems Design and Implementation (OSDI)*, 1999.

15. "Decentralized Replicated-Object Protocols," Pete Keleher. In *The 18th Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC)*, 1999.

16. "Exploiting Application Alternatives," Pete Keleher, Jeffrey K. Hollingsworth and Dejan Perkovic. In *The 19th International Conference on Distributed Computing Systems (ICDCS)*, 1999.

17. "Responsiveness without Interrupts," Dejan Perkovic and Pete Keleher. In *The 13th International Conference on Supercomputing (ICS)*, 1999.

18. "Mechanisms and Policies for Supporting Fine-Grained Cycle Stealing," Kyung Dong Ryu, Jeffrey K. Hollingsworth and Pete Keleher. In *The 13th International Conference on Supercomputing (ICS)*, 1999.

19. "Symmetry and Performance in Consistency Protocols," Pete Keleher. In *The 13th International Conference on Supercomputing (ICS)*, 1999.

20. "Active Correlation Tracking," Kritchal Thitikamol and Pete Keleher. In *The 19th International Conference on Distributed Computing Systems (ICDCS)*, 1999.

21. "Job-Length Estimation and Performance in Backfilling Schedulers," Dmitry Zotkin and Pete Keleher. In *The 8th High Performance Distributed Computing Conference (HPDC)*, 1999.

22. "Thread Migration, Load Balancing, and Heterogeneity in Non-Dedicated Environments," Kritchal Thitikamol and Pete Keleher. In *The 2000 International Parallel and Distributed Processing Symposium (IPDPS)*, 2000.

23. "A Decision-Process Analysis of Implicit Coscheduling," R. Poovendran, P. Keleher and J. S. Baras. In *The 2000 International Parallel and Distributed Processing Symposium (IPDPS)*, 2000.

24. "Randomization, Speculation, and Adaptation in Batch Schedulers," Dejan Perkovic and Pete Keleher. In *Supercomputing (SC2000)*, 2000.

25. "Performance of Mobile, Single-Object, Replication Protocols," Ugur Cetintemel and Pete Keleher. In *The 19th Symposium on Reliable Distributed Systems (SRDS)*, 2000.

26. "Efficient Network and I/O Throttling for Fine-Grain Cycle Stealing," Kyung Dong Ryu, Jeffrey K. Hollingsworth and Pete Keleher. In *The 2001 Supercomputing Conference (SC2001)*, 2001.

27. "Object Distribution With Local Information," Bujor D. Silaghi and Pete Keleher. In *The 22nd International Conference on Distributed Computing Systems (ICDCS)*, 2001.

28. "Support for Speculative Update Propagation and Mobility in Deno," Ugur Cetintemel, Pete Keleher and Michael Franklin. In *The 22nd International Conference on Distributed Computing Systems (ICDCS)*, 2001.

29. "Exploiting Precision vs. Efficiency Tradeoffs in Symmetric Replication Environments," Ugur Cetintemel and Pete Keleher. In *The 21st Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC)*, 2002.

30. "Query Routing in the TerraDir Distributed Directory," Bujor Silaghi, Bobby Bhattacharjee and Pete Keleher. In *SPIE ITCOM*, 2002.

31. "Efficient Distributed Precision Control for Symmetric Replication Environments," Ugur Cetintemel and Pete Keleher. In *The 20th Symposium on Reliable Distributed Systems (SRDS)*, 2002.

32. "Thread Scheduling and Grain Emulation in Software-DSM Systems," Kritchal Thitikamol and Pete Keleher. In *The International Conference on Parallel and Distributed Computing and Systems (PDCS)*, 2002.

33. "Adaptive Replication in Peer-to-Peer Systems," Vijay Gopalakrishnan, Bujor Silaghi, Bobby Bhattacharjee and Pete Keleher. In *The 24th International Conference on Distributed Computing Systems*, 2004.

34. "Trust-Preserving Set Operations," Ruggero Morselli, Samrat Bhattacharjee, Jonathan Katz and Pete Keleher. In *The 23rd Conference of the IEEE Communications Society (Infocom)*, 2004.

35. "Hierarchical Routing with Soft-State Replicas in TerraDir," Bujor Silaghi, Vijay Gopalakrishnan, Bobby Bhattacharjee and Pete Keleher. In *The 18th International Parallel and Distributed Processing Symposium*, 2004.

36. "File System Support for Collaboration in the Wide Area," Vasile Gaburici, Pete Keleher and Bobby Bhattacharjee. In *The 26th International Conference on Distributed Computing Systems*, 2006.

37. "Resource Discovery Techniques in Distributed Desktop Grid Environments," Jik-Soo Kim, Beomseok Nam, Peter Keleher, Michael Marsh, Bobby Bhattacharjee and Alan Sussman. In *The 7th IEEE/ACM International Conference on Grid Computing*, 2006.

38. "Using Content-Addressable Networks for Load Balancing in Desktop Grids," Jik-Soo Kim, Peter Keleher, Michael Marsh, Bobby Bhattacharjee and Alan Sussman. In *Sixteenth IEEE International Symposium on High-Performance Distributed Computing (HPDC)*, 2007.

39. "Implementation and Performance Evaluation of Fuzzy File Block Matching," Bo Han and Pete Keleher. In *2007 USENIX Annual Technical Conference*, 2007.

40. "Distributed Ranked Search," Vijay Gopalakrishnan, Ruggero Morselli, Bobby Bhattacharjee, Pete Keleher and Aravind Srinivasan. In *14th Annual IEEE International Conference on High Performance Computing*, 2007.

41. "Integrating Categorical Resource Types into a P2P Desktop Grid System," Jik-Soo Kim,Beomseok Nam,Peter Keleher,Michael Marsh,Bobby Bhattacharjee,Alan Sussman. In *The 9th IEEE/ACM International Conference on Grid Computing (Grid 2008)*, 2008.

42. "Decentralized Resource Management for Multi-core Desktop Grids," Jaehwan Lee, Pete Keleher and Alan Sussman. In *IEEE International Parallel and Distributed Processing Symposium*, 2010.

43. "Decentralized Network Bandwidth Prediction," Sukhyun Song, Peter J. Keleher, Bobby Bhattacharjee and Alan Sussman. In *24th International Symposium on Distributed Computing*, 2010.

44. "Searching for Bandwidth-Constrained Clusters," Sukhyun Song, Peter J. Keleher and Alan Sussman. In *The 31st International Conference on Distributed Computing Systems (ICDCS 2011)*, 2011.

45. "Decentralized, Accurate, and Low-Cost Network Bandwidth Prediction," Sukhyun Song, Peter J. Keleher, Bobby Bhattacharjee and Alan Sussman. In *The 30th IEEE International Conference on Computer Communications (IEEE INFOCOM 2011)*, 2011.

46. "Supporting Computing Element Heterogeneity in P2P Grids," Jaehwan Lee, Peter J. Keleher and Alan Sussman. In *IEEE Cluster 2011 Conference*, 2011.

47. "Growing Distributed Systems From a Spore," Yunus Basagalar, Vassilios Lekakis and Pete Keleher. In *International Conference on Distributed Systems*, 2012.

48. "Decentralized Scheduling and Load Balancing for Parallel Programs," Gary Jackson, Pete Keleher and Alan Sussman. In *CCGrid*, 2014.

49. "A Ping Too Far: Real World Network Latency Measurement," Gary Jackson, Alan Sussman and Pete Keleher. In *Accepted for publication in the First Annual Workshop on E-science ReseaRch leading tO negative Results (ERROR)*, 2015.

50. "Federating Consistency for Partition-Prone Networks," Benjamin Bengfort and Pete Keleher. In *The 37th International Conference on Distributed Computing Systems*, 2017.

51. "Brief Announcement: Hierarchical Consensus," Benjamin Bengfort and Pete Keleher. In *PODC*, 2017.

52. "Anti-Entropy Bandits for Geo-Replicated Consistency," Benjamin Bengfort, Konstantinos Xirogiannopoulos and Pete Keleher. In *ICDCS*, 2018.

53. "Bilateral Anti-Entropy for Eventual Consistency," Rebecca Bilbro, Benjamin Bengfort and Pete Keleher. In *PaPoC*, 2022.

54. "There Is More Consensus in the Hierarchy," Benjamin Bengfort and Pete Keleher. Submitted for publication.

55. "Shell: A System for Supporting Consistency-Enabled Objects," Vasileios Lekakis and Pete Keleher. Submitted for publication.

56. "Geo-Replicating Federated File Systems," Benjamin Bengfort and Pete Keleher. Submitted for publication.

2.5 Articles in Refereed Workshops

1. "Distributed Shared Memory: Experience with Munin," John Bennett, John Carter, Alan Cox, David Johnson, Pete Keleher, Mootaz Elnozahy and Willy Zwaenepoel. In *Proceedings of the 5th ACM SIGOPS Workshop on Models and Paradigms for Distributed Systems Structuring*, 1992.

2. "Compile Time Support for Distributed Shared Memory," Sandhya Dwarkadas, Pete Keleher, Alan Cox and Willy Zwaenepoel. In *Proceedings of the Third Workshop on Scalable Shared Memory Multiprocessors*, 1993.

3. "Improving the Compiler/Software DSM Interface: Preliminary Experiences," Chau-Wen Tseng and Pete Keleher. In *Proceedings of the First SUIF Compiler Workshop*, 1996.

4. "Sparks: Coherence as an Abstract Type," Pete Keleher. In *The Fifth IEEE International Workshop on Object-Orientation in Operating Systems (IWOOS '96)*, 1996.

5. "Reducing Synchronization Overhead for Compiler-Parallelized Codes on Software DSMs," H. Han, Chau-Wen Tseng and Pete Keleher. In *The Workshop on Languages and Compilers for Parallel Computing (LCPC'97)*, 1997.

6. "Parallel Jobs, Sequential Jobs, and Non-Dedicated Clusters of Workstations," K. Thitikamol and P. Keleher. In *The 3rd Workshop on Runtime Systems for Parallel Programming (RT-SPP)*, 1999.

7. "Light-Weight Currency Management Mechanisms in Deno," Ugur Cetintemel and Pete Keleher. In *The 10th IEEE Workshop on Research Issues in Data Engineering (RIDE2000)*, 2000.

8. "Thread Migration and Load-Balancing in Heterogenous Environments ," Kritchal Thitikamol and Pete Keleher. In *The 5th ACM Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers (LCR)*, 2000.

9. "Are Virtualized Overlay Networks Too Much of a Good Thing?" Pete Keleher, Samrat Bhattacharjee and Bujor Silaghi. In *The 1st International Workshop on Peer-to-Peer Systems (IPTPS'02)*, 2002.

10. "Efficient Peer-To-Peer Searches Using Result-Caching," Bobby Bhattacharjee, Sudarshan Chawathe, Vijay Gopalakrishnan, Pete Keleher and Bujor Silaghi. In *The 2nd International Workshop on Peer-to-Peer Systems (IPTPS'03)*, 2003.

11. "Multi-Dimensional Quorum Sets for Read-Few Write-Many Replica Control Protocols," Bujor Silaghi, Pete Keleher and Bobby Bhattacharjee. In *Fourth International Workshop on Global and Peer-to-Peer Computing*, 2004.

12. "Distributing Google," Vijay Gopalakrishnan, Bobby Bhattacharjee and Pete Keleher. In *The 2nd IEEE International Workshop on Networking Meets Databases*, 2006.

13. "Creating a Robust Desktop Grid using Peer-to-Peer Services," Jik-Soo Kim, Beomseok Nam, Peter Keleher, Michael Marsh, Bobby Bhattacharjee and Alan Sussman. In *2007 NSF Next Generation Software Workshop (NSFNGS 2007)*, 2007.

14. "Matchmaking and Implementation Issues for a P2P Desktop Grid," Michael Marsh, Jik-Soo Kim, Beomseok Nam, Jaehwan Lee, San Ratanasanya, Bobby Bhattacharjee, Peter Keleher, Derek Richardson, Dennis Wellnitz and Alan Sussman. In *2008 National Science Foundation Next Generation Software Workshop*, 2008.

15. "Decentralized Dynamic Scheduling across Heterogeneous Multi-core Desktop Grids," Jaehwan Lee, Pete Keleher and Alan Sussman. In *19th International Heterogeneity in Computing Workshop*, 2010.

16. "Don't Trust Your Roommate," Vassilios Lekakis, Yunus Basagalar and Pete Keleher. In *The 4th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)*, 2012.

2.6 Contracts and Grants

1. "CSR: Small: There is More Consensus in the Hierarchy Object Stores," Principal Investigator, Sept 1, 2018 - Aug. 31 2020, $500,000, *submitted to the National Science Foundation.*

2. "CSR: Small: Strong Consistency for Personal and Collaborative Object Stores," National Science Foundation, Principal Investigator, Oct 1, 2014 - Sept. 31 2016, $300,000.

3. "Machine Learning and Targeted Advising," University of Maryland, Principal Investigator (with co-PI Samir Khuller, Chau-Wen Tseng), July 2014 - July 2014, $72,000.

4. "Machine Learning and Targeted Advising," University of Maryland, Principal Investigator (with co-PIs Samir Khuller, Chau-Wen Tseng), July 2013 - July 2014, $76,000.

5. "Data Staging and Virtual Clusters in Robust Desktop Grids," National Science Foundation, Principal Investigator (with co-PIs Alan Sussman and Derek Richardson), September 2009 - August 2012, $475,000.

6. "Distributed Capability Systems," National Science Foundation, Principal Investigator, September 2007 - August 2010, $450,000.

7. "Analyst Training Program", (8500) Corporations, Principal Investigator, September 2007 - August 2008, $30,000.

8. "Creating a Robust Desktop Grid using Peer-to-Peer Services", National Science Foundation, co-PI (with PI A. Sussman, co-PIs B. Bhattacharjee, D. Richardson), July 2006 - June 2009, $365,700.

9. "Robust Grid Computing Using Peer to Peer Services", NASA, co-PI (with PI A. Sussman, co-PIs B. Bhattacharjee, D. Richardson, D. Wellnitz), March 2006 - March 2009, $1,008,251.

10. "Employing Peer-to-Peer Services for Robust Grid Computing", National Science Foundation, co-PI (with PI A. Sussman, co-PIs B. Bhattacharjee, D. Richardson), September 2005 - August 2006, $60,000.

11. "Fast, Flexible, and Secure Wide-Area File Systems," National Science Foundation, Principal Investigator, September 2002 - August 2007, $420,001.

12. "TerraDir: Scalable, Configurable Distributed Directories for the Internet," National Science Foundation, co-PI (with PI Bhattacharjee), September 2001 - September 2005, $709,973.

13. "System Support for Enterprise Application Servers," National Science Foundation, PI (with co-PIs Saltz, Roussopoulos, Hollingsworth, and Pugh), September 2000 - September 2004, $861,244, plus university matching money.

14. "Shared-memory Metacomputing," National Science Foundation, PI, September 2000 - September 2002, $111,987.

15. "High Performance Systems for Shape and Action Modeling," National Science Foundation, co-PI (with PI Davis, co-PIÕs Aloimonos, Sussman, Hollingsworth) September 15, 1999 - August 30, 2002, NSF, $1,096,011.

16. "Decentralized Consistency Protocols," Microsoft, PI, August 1999, $34,588.

17. "Dynamic Resource Management," NSA, co-PI (with PI Jeff Hollingsworth), 1997-2000, $200,000.

18. "Active Harmony: Dynamic Resource Management in the Large," National Science Foundation, co-PI (with PI Hollingsworth), Aug. 1997 - Aug. 2001, $200,000.

19. "Sparks: Coherence as an Abstract Type", National Science Foundation, PI, March 1996 - March 2000, $200,000.

20. "Per-Node Multi-Threading and Remote Latency in Software DSMs," PI, NSA, 1997, $50,000.

2.7 Fellowships, Prizes and Awards

1. Department of Computer Science Teaching Excellence Award, 2015.

2. NSF Faculty Early Career Development Award, 1996-2000.

3. ORAU Junior Faculty Enhancement Award, Honorable Mention, 1996.

4. Department of Computer Science Teaching Excellence Award, 1996.

5. NASA Graduate Fellowship, 1990-1993.

6. Outstanding Achievement Award, General Dynamics, 1988.

7. Brown Engineering Scholarship, 1983.

8. National Merit Scholar.

2.8 Editorial Boards and Reviewing Activities for Learned Publications

1. Reviewed for IEEE Transactions on Computing Systems, IEEE Transactions on Parallel and Distributed Systems, the Journal of Parallel and Distributed Computing.

2.9 Research Software

1. CVM: A high-performance distributed shared memory implementation that facilitates protocol experimentation. Unique features include multiple protocols and multi-threading support. Released on the Internet and used by many projects worldwide. Over 500 copies downloaded to date.

2. TreadMarks: The first publicly released distributed shared memory system. Commercialized by Parallel Tools, L.L.C. (1996).

3. Alpha: Macintosh programmerÕs text editor used by tens of thousands of users world-wide.

3 Teaching and Advising

3.1 Course and Curriculum Development

1. CMSC 414 - Computer and Network Security (2000) Created a new computer and network security course from scratch. The course included a series of programming projects that stress all aspects of building secure systems, from private-key encryption algorithms through

message privacy and integrity, to authentication. The course included an entirely new series of programming projects, not based on similar courses elsewhere. This course was previewed as CMSC 498k in Spring, 2000, and taught in Fall 2000 for the first time.

3.2 Teaching Awards and Other Special Recognition

1. Teaching Excellence Award for Faculty - Department of Computer Science, May 1996.

3.3 Advising: Research Advisor

3.3.1 Undergraduate

- Eric Lemar, 1997-1998.

3.3.2 Masters

- Alan Leis, 2018-.

- Suman Banerjee, 1997-1998.

3.3.3 Doctoral (Completed)

- Kritchalach Thitikamol, graduated May 2000, currently at Thammasat University.

- Ugur Cetintemel, graduated December 2001, currently at Brown University.

- Bujor Salehi, graduated December 2003, currently at Google.

- Vijay Gopalakrishnan, co-advised (with Bhattacharjee), August 2006, currently at ATT.

- Jik-Soo Kim, co-advised (with Sussman), January 2009, currently at Emory University.

- Sukhyung Song, co-advised (with Sussman), graduated July 2012, currently doing postdoctoral research with Dr. Hollingsworth.

- Jaehwan Lee, co-advised (with Sussman), graduated July 2012, currently at Samsung Research.

- Gary Jackson, co-advised (with Sussman), graduated in 2015, currently at Johns Hopkins APL.

- Vasileios Lekakis defended Feb. 26 2018, graduating May 2018, currently at Amazon.

- Benjamin Bengfort, defended November 2018, currently at PingThings.

4 Service

4.1 Professional

4.1.1 Outreach

- University of Maryland representative on the Montgomery County High School "Information Technology (IT) Collaboration Project Team", 2008-2009.

4.1.2 Unpaid reviewing activities for agencies

- NSF proposal panelist, NSF 1995-2007, 2009, 2011-2017, 2021.

4.1.3 Other non-University Panels and Positions

- Program Committee, *International Conference on Advances in Computing, Communications and Informatics (ICACCI-2012)*, 2012.

- Program Committee, *IEEE International Conference on Communications 2012, Wireless and Mobile Networking Symposium (ICC 2012, WNS)*, 2012.

- Program Committee, *The International Conference on Selected Topics in Mobile and Wireless Networking(iCOST'2011)*, 2011.

- Program Committee, *IEEE International Conference on Communications 2011, Wireless and Mobile Networking Symposium (ICC 2011, WNS)*, 2011.

- Program Committee, *Third International Conference on MOBILe Wireless MiddleWARE, Operating Systems, and Applications (Mobilware)*, 2010.

- Program Committee, *The International Conference on Computer Communications and Networks (IC3N)*, 2010.

- Program Committee, *IEEE Globecom*, 2010.

- Program Committee, *Second International Conference on MOBILe Wireless MiddleWARE, Operating Systems, and Applications (Mobilware)*, 2009.

- Program Committee, *The International Conference on Computer Communications and Networks (IC3N)*, 2009.

- Program Committee, *The International Conference on Communications*, 2009.

- Program Committee, *First International Conference on MOBILe Wireless MiddleWARE, Operating Systems, and Applications (Mobilware)*, 2008.

- Program Committee, *The International Conference on Communications*, 2008.

- Program Committee, *The International Conference on Computer Communications and Networks (IC3N)*, 2007.

- Program Committee, *The International Conference on Computer Communications and Networks (IC3N)*, 2006.

- Program Committee, *The Twelfth International Conference on Parallel and Distributed Systems (ICPADS)*, 2006.

- Program Committee, *International Conference on Distributed Computing Systems*, 2006.

- Program Commttee, *2nd IEEE International Workshop on Networking Meets Databases (NetDB'06)*, 2006.

- Program Committee, *International Conference on Parallel and Distributed Systems*, 2006.

- Program Committee, *International Conference on Parallel Processing*, 2005.

- Program Committee, *4th International ACM Workshop on Data Engineering for Wireless and Mobile Access (MobiDE '05)*, 2005.

- Vice-Chair, *International Conference on Parallel Processing*, August 2004.

- Program Committee, *International Conference on Parallel Processing*, October 2003.

- Program Committee, *The 6th International Conference on Open Architectures and Network Programming (OPENARCH)*, April 2003.

- Program Committee, *International Conference on Parallel Processing*, August 2003.

- Program Co-Chair, *6th Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers, (LCR2002)*, March 2002.

- Program Committee, *International Conference on Distributed Computing Systems*, 2002.

- Program Committee, *International Conference on Parallel Processing*, August 2002.

- Proceedings Chair, *Fourteenth International Parallel Processing Symposium and Tenth Symposium on Parallel and Distributed Processing*, 2001.

- Program Committee, *2nd International Conference on Mobile Data Management*, January 2001.

- Program Committee, *International Conference on Distributed Computing Systems*, 2001.

- Program Committee, *IEEE International Conference on Cluster Computing and the Grid*, 2001.

- Program Committee, *Fourth International Workshop on High-Level Parallel Programming Models and Supportive Environments Workshop*, 2001.

- Program Co-Chair, *2nd Annual Workshop on Software Distributed Shared Memory*, June 2000.

- Proceedings Chair, *Thirteenth International Parallel Processing Symposium and Tenth Symposium on Parallel and Distributed Processing*, 2000.

- Panel Member, "Mobile Infrastructure: Myth or Reality?" at *The 10th IEEE Workshop on Research Issues in Data Engineering (RIDE2000)*, May 2000.

- Panel Member, "Pervasive Computing", at *The 2000 International Conference on Parallel Processing*, August 2000.

- Program Committee, *14th International Conference on Supercomputing*, June 2000.

- Program Committee, *International Conference on Distributed Computing Systems*, 2000.

- Program Committee, *Fourth International Workshop on High-Level Parallel Programming Models and Supportive Environments Workshop*, 2000.

- Session Chair, *14th International Parallel Processing Symposium and Tenth Symposium on Parallel and Distributed Processing*, 2000.

- Session Chair, *5th Workshop on Languages, Compilers, and Run-time Systems for Scalable Computers*, May 2000.

- Program Co-Chair, *1st Annual Workshop on Software Distributed Shared Memory*, June 1999.

- Program Committee, *International Conference on Parallel and Distributed Processing Techniques and Applications*, 1999.

- Program Committee, *Fourth International Workshop on High-Level Parallel Programming Models and Supportive Environments Workshop*, 1999.

- Program Committee, *International Conference on Distributed Computing Systems*, 1998.

- Program Committee, *Third International Workshop on High-Level Parallel Programming Models and Supportive Environments Workshop*, 1998.

- Program Committee, *International Conference on Distributed Computing Systems*, 1997.

- Program Committee, *Second International Workshop on High-Level Parallel Programming Models and Supportive Environments Workshop*, 1997.

4.1.4 Departmental Service

- Teaching Evaluation Chair, 2023-2024.

- IT Staff Advisor, 2022-2024.

- Teaching Evaluation Committee, 2022-2023.

- Area Chair, 2022-2023.

- Develop/support hiring.cs software and site, 2004-2021.

- Faculty search committee, 2015-16.

- University Senate, 2015-18.

- Chair, Tech Fee Preparation, 1999 - 2016.

- Instructor hiring committee, 2014.

- Co-Chair, High School Programming Contest, 2013.

- Teaching Committee, 2010-2011.

- Graduate applications, 2006, 2007, 2010.

- Chair, Dean's Fellowship Award Committee, 2005 - 2008.

- Departmental Hiring committee, 1999-2001, 2003, 2008.

- Chair, technical staff search committee, 2005.

- Member, database/web search committee, 2005.

- Committee on Upper Division Courses, 2003.

- Faculty Recruitmant, 1999, 2000, 2001, 2003

- Department Council, 2002-2003.

- Grad Student Applications 1999, 2000.

- Honors Program Chair, 1998-2000.

- Webmaster, 1999-2000.

- Teaching Committee, 1996-1999.

- Judge, High School Programming Contest, 1995-1998.

- Lab Committee, 1996-1997.

- Search Committee for Systems Support Staff, 1995-1997.

- Coordinated Graduate Orientation, 1996.

4.1.5   University

- IT Council member 2020-2021

- Leading effort to apply machine learning to target advising resources for the Office of Institutional Research, Planning, and Assessment at UMD.

- CMPS Student Technology Advisory Committee (STAC) 2003-2005.

- College APT Committee 2004-2005.

- UMIACS Chair Search 2003-2004.

- UMIACS APT Committee, 1997-2000.

- Computer Engineering ABET Committee 1999-2000.

- Search Committee for Director of Network Operations, 1997.

- Senior Summer Scholars Committee, 1999-2000.

I assert that the above is all correct as of October 10, 2023

Pete Keleher
Associate Professor
Department of Computer Science