

# Michael B. Jones

Microsoft Research, Microsoft Corporation  
One Microsoft Way, Building 112/3026  
Redmond, WA 98052, USA

<http://research.microsoft.com/~mbj/>  
mbj@microsoft.com

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## Curriculum Vitae

Citizenship: United States of America.

### Education

Ph.D. in Computer Science, Carnegie Mellon University, Pittsburgh, PA, September 1992. Thesis: *Transparently Interposing User Code at the System Interface*. Advisors: Richard F. Rashid, Microsoft Research, Microsoft Corporation and Eric C. Cooper, Fore Systems Corporation.

M.S. in Computer Science, Carnegie Mellon University, Pittsburgh, PA, December 1988.

B.S. in Mathematics (Graduate with University Honors), Carnegie Mellon University, Pittsburgh, PA, May 1982.

Worthington High School (Valedictorian), Worthington, OH, 1978.

### Work Experience

Researcher, September 1992-present, Systems and Networking Research Group, Microsoft Research, Microsoft Corporation, Redmond, WA.

Summer Intern, Summer 1986, DEC Systems Research Center, Palo Alto, CA.

Research Programmer, June 1982-August 1985, SPICE Project, Computer Science Department, Carnegie Mellon University, Pittsburgh, PA.

Operating Systems Consultant, Spring 1982, Robotics Institute, Carnegie Mellon University, Pittsburgh, PA.

Programmer, June 1979-May 1982, Language Development Group, CompuServe Inc., Columbus, OH. Worked full time during summers 1979-1981 and part time during undergraduate studies.

### Research Projects

Project Member, Singularity Type-Safe Managed Code Operating System Project, Microsoft Research, 2004-present.

Co-Investigator and then Project Lead, Herald Scalable Distributed Event Notification Project, Microsoft Research, 2000-2004.

Project Lead, Consumer Real-Time Project, Microsoft Research, 1997-2001.

Participant, Millennium Distributed Systems Project, Microsoft Research, 1997.

Researcher, Rialto Real-Time Operating System, Microsoft Research, 1993-1997.

Design Team Member, Tiger Video Fileserver, Microsoft Research, 1993.

Member, CMU Mach Project, 1986-1992.

Lead Programmer, CMU/IBM SPICE Port Project, 1984-1985.

Member, CMU SPICE Project, 1982-1985.

## Major Software Systems

Singularity Operating System Kernel, Microsoft Research, 2004-present.

Herald Scalable Distributed Event Notification System, Microsoft, 2000-2004.

Rialto/NT Real-Time Operating System, Microsoft, 1998-2001.

Rialto Real-Time Operating System, Microsoft, 1993-1997.

Microsoft Interactive Television System, Microsoft, 1993-1996.

Tiger Video Fileserver (design team member), Microsoft, 1993.

Interposition Agents: A Toolkit for Interposing User Code at the System Interface (Ph.D. thesis system), 1990-1992.

Mach Operating System (contributions included parallel libraries, cthreads, multi-server BSD emulation, generic operating system emulation) CMU, 1986-1992.

Taos Distributed Name Service, DEC Systems Research Center, Summer 1986.

Matchmaker interprocess communication specification language and stub generator, CMU, 1983-1986.

Accent Operating System (distributed file system, software virtual memory, RPC language, network IPC support, command language, software tools, etc.), CMU, 1982-1985.

## Publications

### Conference Papers

John Dunagan, Nicholas J. A. Harvey, Michael B. Jones, Dejan Kostic, Marvin Theimer, Alec Wolman. FUSE: Lightweight Guaranteed Distributed Failure Notification. In *Proceedings of the Sixth USENIX Symposium on Operating Systems Design and Implementation (OSDI '04)*, December 2004.

Miguel Castro, Michael B. Jones, Anne-Marie Kermarrec, Antony Rowstron, Marvin Theimer, Helen Wang, and Alec Wolman. An Evaluation of Scalable Application-Level Multicast Built Using Peer-To-Peer Overlays. In *Proceedings of Infocom 2003*, April 2003.

Nicholas J. A. Harvey, Michael B. Jones, Stefan Saroiu, Marvin Theimer, and Alec Wolman. SkipNet: A Scalable Overlay Network with Practical Locality Properties. In *Proceedings of Fourth USENIX Symposium on Internet Technologies and Systems (USITS '03)*, March 2003. **Received best paper award.**

Marvin Theimer and Michael B. Jones. Overlook: Scalable Name Service on an Overlay Network. In *Proceedings of the 22<sup>nd</sup> International Conference on Distributed Computing Systems (ICDCS)*, Vienna, Austria. IEEE Computer Society, July 2002.

Michael B. Jones, John Regehr, and Stefan Saroiu. Two Case Studies in Predictable Application Scheduling Using Rialto/NT. In *Proceedings of the Seventh Real-Time Technology and Applications Symposium (RTAS 2001)*, Taipei, Taiwan, May 30-June 1, 2001.

Michael B. Jones and Stefan Saroiu. Predictability Requirements of a Soft Modem. In *Proceedings of the ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, Cambridge, MA, June 2001.

Michael B. Jones, John Regehr. CPU Reservations and Time Constraints: Implementation Experience on Windows NT. In *Proceedings of the Third USENIX Windows NT Symposium*, Seattle, WA, pages 93-102, July 1999.

Michael B. Jones, George M. Candea. Vassal: Loadable Scheduler Support for Multi-Policy Scheduling. In *Proceedings of the Second USENIX Windows NT Symposium*, Seattle, WA, pages 157-166, August 1998. *Received best student paper award.*

Michael B. Jones, Daniela Roşu, Marcel-Cătălin Roşu. CPU Reservations and Time Constraints: Efficient, Predictable Scheduling of Independent Activities. In *Proceedings of the 16<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP)*, Saint-Malo, France, pages 198-211, October 1997.

Michael B. Jones. Interposition Agents: Transparently Interposing User Code at the System Interface. In *Proceedings of the 14<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP)*, Asheville, NC, pages 80-93, December 1993.

Michael B. Jones. Bringing the C Libraries With Us into a Multi-Threaded Future. In *Proceedings of the Winter 1991 USENIX Conference*, Dallas, TX, pages 81-91, January 1991.

Richard Rashid, Daniel Julin, Douglas Orr, Richard Sanzi, Robert Baron, Alessandro Forin, David Golub, Michael Jones. Mach: A System Software Kernel. In *Proceedings of the 34<sup>th</sup> IEEE Computer Society International Conference (COMPCON)*, San Francisco, pages 176-178. IEEE, Feb-Mar 1989.

Andrew D. Birrell, Michael B. Jones, Edward P. Wobber. A Simple and Efficient Implementation for Small Databases. In *Proceedings of the 11<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP)*, Austin, TX, November 1987.

Michael B. Jones, Richard F. Rashid. Mach and Matchmaker: Kernel and Language Support for Object-Oriented Distributed Systems. In *Proceedings of First ACM Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA)*, Portland, OR, September 1986.

Michael B. Jones, Richard F. Rashid, Mary R. Thompson. Matchmaker: An Interface Specification Language for Distributed Processing. In *Proceedings of 12<sup>th</sup> ACM Principles of Programming Languages (POPL)*, New Orleans, January 1985.

### **Workshop Papers**

Nicholas J. A. Harvey, Michael B. Jones, Marvin Theimer, and Alec Wolman. Efficient Recovery From Organizational Disconnect in SkipNet. In *Proceedings of Second International Workshop on Peer-to-Peer Systems (IPTPS '03)*, February 2003.

Luis Felipe Cabrera, Michael B. Jones, and Marvin Theimer. Herald: Achieving a Global Event Notification Service. In *Proceedings of the Eighth Workshop on Hot Topics in Operating Systems (HotOS-VIII)*, Elmau, Germany. IEEE Computer Society, May 2001.

Luis Felipe Cabrera, Michael B. Jones, and Marvin Theimer. Herald: Achieving a Global Event Notification Service. In *Proceedings of the Eighth Workshop on Hot Topics in Operating Systems (HotOS-VIII)*, Elmau, Germany. IEEE Computer Society, May 2001.

Michael B. Jones, John Regehr. The Problems You're Having May Not Be the Problems You Think You're Having: Results from a Latency Study of Windows NT. In *Proceedings of the Seventh Workshop on Hot Topics in Operating Systems (HotOS-VII)*, Rio Rico, AZ. IEEE Computer Society, March 1999.

Michael B. Jones, John Regehr. Issues in Using Commodity Operating Systems for Time-Dependent Tasks: Experiences from a Study of Windows NT. In *Proceedings of the Eighth International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV 98)*, Cambridge, England, July 1998.

William J. Bolosky, Richard P. Draves, Robert P. Fitzgerald, Christopher W. Fraser, Michael B. Jones, Todd B. Knoblock, Rick Rashid. Operating System Directions for the Next Millennium. In *Proceedings of the Sixth Workshop on Hot Topics in Operating Systems (HotOS-VI)*, Cape Cod, MA. IEEE Computer Society, May 1997.

Michael B. Jones, Joseph S. Barrera III, Alessandro Forin, Paul J. Leach, Daniela Roşu, Marcel-Cătălin Roşu. An Overview of the Rialto Real-Time Architecture. In *Proceedings of the Seventh ACM SIGOPS European Workshop*, Connemara, Ireland, pages 249-256, September 1996.

William J. Bolosky, Joseph S. Barrera III, Richard P. Draves, Robert P. Fitzgerald, Garth A. Gibson, Michael B. Jones, Steven P. Levi, Nathan P. Myhrvold, Richard F. Rashid. The Tiger Video Fileserver. In *Proceedings of the Sixth International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV)*, Zushi, Japan. IEEE Computer Society, April 1996.

Michael B. Jones, Paul J. Leach, Richard P. Draves, Joseph S. Barrera III. Modular Real-Time Resource Management in the Rialto Operating System. In *Proceedings of the Fifth Workshop on Hot Topics in Operating Systems (HotOS-V)*, Orcas Island, WA, pages 12-17. IEEE Computer Society, May 1995.

Michael B. Jones, Paul J. Leach, Richard P. Draves, Joseph S. Barrera III. Support for User-Centric Modular Real-Time Resource Management in the Rialto Operating System. In *Proceedings of the Fifth International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV)*, Durham, NH, pages 55-65. IEEE Computer Society, April 1995.

Michael B. Jones. Modular Real-Time Services: A Key to Flexible Multimedia Computing Systems. In *Proceedings of the Workshop on the Role of Real-Time in Multimedia/Interactive Computing Systems*, Raleigh-Durham, NC. IEEE Computer Society, November 1993.

Michael B. Jones. Adaptive Real-Time Resource Management Supporting Modular Composition of Digital Multimedia Services. In *Proceedings of the Fourth International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV)*, Lancaster, U.K., pages 11-18. IEEE Computer Society, November 1993.

Michael B. Jones. Adaptive Real-Time Resource Management Supporting Composition of Independently Authored Time-Critical Services. In *Proceedings of the Fourth Workshop on Workstation Operating Systems (WWOS-IV)*, Napa, CA, pages 135-139. IEEE Computer Society, October 1993.

Michael B. Jones. Inheritance in Unlikely Places: Using Objects to Build Derived Implementations of Flat Interfaces. In *Proceedings of the Second International Workshop on Object Orientation in Operating Systems (IWOOS)*, Paris, pages 341-345. IEEE Computer Society, September 1992.

Michael B. Jones. Transparently Interposing User Code at the System Interface. In *Proceedings of the Third Workshop on Workstation Operating Systems (WWOS-III)*, Key Biscayne, pages 98-103. IEEE Computer Society, April 1992.

Michael B. Jones. A Toolkit for Interposing User Code at the System Interface. In *Proceedings of the OOPSLA/ECOOP on Object-Oriented in Operating Systems*, Ottawa, Canada. Also reprinted in *IEEE Computer Society Technical Committee on Operating Systems and Applications Environments (TCOS) Technical Committee Newsletter* 5(1):26-31, Spring 1991.

Richard Rashid, Robert Baron, Alessandro Forin, David Golub, Michael Jones, Daniel Julin, Douglas Orr, Richard Sanzi. Mach: A Foundation for Open Systems. In *Proceedings of the Second Workshop on Workstation Operating Systems (WWOS-II)*, Asilomar, CA, pages 109-113. IEEE Computer Society, September 1989.

Eric C. Cooper, Michael B. Jones. An Object-Oriented Approach to Remote Procedure Call Stub Generation for Heterogeneous Environments. In *Proceedings of Second Workshop on Large Grained Parallelism*, Hidden Valley, PA. CMU Software Engineering Institute, October 1987.

## **Work-In-Progress Presentations**

Michael B. Jones and John Regehr. *Results from a Latency Study of Windows NT, Or..., The Problems You're Having May Not Be the Problems You Think You're Having*. 19<sup>th</sup> IEEE Real-Time Systems Symposium, Madrid, December 1998.

Michael B. Jones, Daniela Roşu, Marcel-Cătălin Roşu. *CPU Reservations and Time Constraints: Efficient, Predictable Scheduling of Independent Activities*. Summarized 1997 SOSP results for attendees of 18<sup>th</sup> IEEE Real-Time Systems Symposium (RTSS), San Francisco, December 1997.

Michael B. Jones. *A Toolkit for Interposing User Code at the System Interface*. 13<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP), Asilomar, CA, October 1991.

Michael B. Jones. *A Toolkit for Interposing User Code at the System Interface*. First USENIX Mach Workshop, Burlington, VT, October 1990.

## **Book Sections**

Michael B. Jones. Interposition Agents: Transparently Interposing User Code at the System Interface. In *Secure Internet Programming: Security Issues for Mobile and Distributed Objects*. Jan Vitek and Christian D. Jensen (editors), pages 339-368. Lecture Notes in Computer Science series, Vol. 1603, Springer-Verlag, 1999. ISBN 3-540-66130-1.

Michael B. Jones, Paul J. Leach, Richard P. Draves, Joseph S. Barrera III. Support for User-Centric Modular Real-Time Resource Management in the Rialto Operating System. In *Proceedings of the Fifth International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV '95)*. Tom D.C. Little and Riccardo Gusella (editors). Lecture Notes in Computer Science series, Vol. 1018, Springer-Verlag, 1995. ISBN 3-540-60647-5.

Michael B. Jones. Adaptive Real-Time Resource Management Supporting Modular Composition of Digital Multimedia Services. In *Proceedings of the Fourth International Workshop on Network and Operating System Support for Digital Audio and Video*. D. Shepherd, G. Blair, G. Coulson, N. Davies and F. Garcia (editors). Lecture Notes in Computer Science Vol. 846, Springer-Verlag, 1994. ISBN 3-540-58404-8.

## **Magazine Articles**

Michael B. Jones. *Consumer Real-Time Systems and Applications*. Invited position statement in Distributed Systems Online, Real-Time and Embedded Systems area special issue on "Where is Real-Time and Embedded Systems Research Going?", vol. 1, issue 3. IEEE, September 2000.

Tom Durkin. The Vx-Files: What the Media Couldn't Tell You About Mars Pathfinder. In *Robot Science & Technology*, pages 36-39, 53, Premier Issue, April 1998. Based in part on my e-mail message *What really happened on Mars?* Risks Forum (comp.risks) issue RISKS-19.49, December 1997.

Michael B. Jones. Adaptive Real-Time Resource Management Supporting Modular Composition of Digital Multimedia Services. In *Nikkei Electronics* special issue on *National Information Infrastructure*, pages 220-225, November 10, 1994. Translated from article in Proceedings of the Fourth International Workshop on Network and Operating System Support for Digital Audio and Video into Japanese.

## **Technical Reports, Unrefereed Papers, Manuals, and Online Articles**

John Dunagan, Nicholas J.A. Harvey, Michael B. Jones, Marvin Theimer, and Alec Wolman. *Subscriber/Volunteer Trees: Polite, Efficient Overlay Multicast Trees*. Microsoft Research Technical Report MSR-TR-2004-131, December 2004.

Michael B. Jones and John Dunagan. *Engineering Realities of Building a Working Peer-to-Peer System*. Microsoft Research Technical Report MSR-TR-2004-54, June 2004.

Michael B. Jones, Marvin Theimer, Helen Wang, and Alec Wolman. *Unexpected Complexity: Experiences Tuning and Extending CAN*. Microsoft Research Technical Report MSR-TR-2002-118, December 2002.

Nicholas J. A. Harvey, John Dunagan, Michael B. Jones, Stefan Saroiu, Marvin Theimer, and Alec Wolman. *SkipNet: A Scalable Overlay Network with Practical Locality Properties*. Microsoft Research Technical Report MSR-TR-2002-92, December 2002.

*The First Smiley :-)*. Personal web page, September 2002.

Michael B. Jones and Stefan Saroiu. *Predictable Scheduling for a Soft Modem*. Microsoft Research Technical Report MSR-TR-2000-88, December 2000.

Michael B. Jones and John Regehr. *Predictable Scheduling for Digital Audio*. Microsoft Research Technical Report MSR-TR-2000-87, December 2000.

John Regehr, Michael B. Jones, and John A. Stankovic. *Operating System Support for Multimedia: The Programming Model Matters*. Microsoft Research Technical Report MSR-TR-2000-89, September 2000.

Michael B. Jones. *What really happened on Mars?* Risks Forum (comp.risks) issue RISKS-19.49, December 1997.

Michael B. Jones. *The Microsoft Interactive TV System: An Experience Report*. Microsoft Research Technical Report MSR-TR-97-18, July 1997.

Michael B. Jones. *Transparently Interposing User Code at the System Interface*. Ph.D. Thesis, Carnegie Mellon University, School of Computer Science, September 1992. Available as Technical Report CMU-CS-92-170.

Michael B. Jones. *A Toolkit for Interposing User Code at the System Interface*. Ph.D. Thesis Proposal, Carnegie Mellon University, Computer Science Department, May 1990.

Michael B. Jones, Richard F. Rashid, Robert D. Sansom, Mary R. Thompson. *Sesame: The SPICE File System*. Carnegie-Mellon University Computer Science Department Technical Report CMU-CS-85-172, December 1985.

Michael B. Jones, Richard F. Rashid, Mary R. Thompson. *Matchmaker: An Interface Specification Language for Distributed Processing*. Carnegie-Mellon University Computer Science Department Technical Report CMU-CS-84-161, December 1984.

Michael B. Jones. *Matchmaker: A Language for Remote Procedure Calls* (Language reference manual). PERQ Systems Corporation, 1984.

Mary Thompson, Michael B. Jones, Kathie Ferraro, Keith Wright. *Matchmaker: A Remote Procedure Call Generator*. Carnegie-Mellon University Computer Science Department SPICE Document S129, July 1983.

## **Invited Lectures, Presentations, and Panels**

Using Peer-to-Peer Overlay Networks for Scalable Naming and Event Notification Services. Microsoft Faculty Summit, July 2002.

*Herald: Achieving a Global Event Notification Service*. University of Washington, February 2002.

*Herald: Achieving a Global Event Notification Service*. Duke University, January 2002.

Berkeley Networking Day panel on Internet Architecture, Presented position statement *The Realities Facing Peer-to-Peer Systems*, September 2001.

Panel on *Fundamental R&D Issues in Real-Time Distributed Computing*, Third IEEE International Symposium on Object-oriented Real-time distributed Computing (ISORC 2000), Newport Beach, CA, March 2000.

IFIP WG 10.4 (Dependable Computing and Fault Tolerance) Workshop on Time and Dependability, Fort de France, Martinique, January 2000.

*The Problems You're Having May Not Be the Problems You Think You're Having: Results from a Latency Study of Windows NT*. Fifth IEEE Real-Time Technology and Applications Symposium (RTAS '99), Vancouver, BC, June 1999.

*Issues in Using Commodity Operating Systems for Time-Dependent Tasks: Experiences from a Study of Windows NT*. DARPA Windows NT Workshop, Seattle, August 1998.

*Building Real-Time Systems Using Commercial Off-the-Shelf (COTS) Technologies*, panel organizer, Fourth IEEE Real-Time Technology and Applications Symposium (RTAS '98), Denver, June 1998.

*Industrial Panel: Real Issues and Real Solutions*, panel, 18<sup>th</sup> IEEE Real-Time Systems Symposium (RTSS), San Francisco, December 1997.

*CPU Reservations and Time Constraints: Efficient, Predictable Scheduling of Independent Activities*, presented at Hewlett Packard Laboratories, Palo Alto, December 1997.

*The Tiger Video Fileserver*, 17<sup>th</sup> IEEE Real-Time Systems Symposium (RTSS), Washington, DC, December 1996.

*Mobile Code*, panel debate, Seventh ACM SIGOPS European Workshop, Connemara, Ireland, September 1996.

*Rialto: A Real-Time Operating System for Distributed and Embedded Consumer Environments*, presented at the MIT Laboratory for Computer Science, June 1996.

*Operating Systems for Distributed and Embedded Consumer Environments*, presented at Sun Microsystems, June 1995.

*Future Distributed Embedded and Real-Time Applications Will be Adaptive*, panel, 15<sup>th</sup> International Conference on Distributed Computer Systems (ICDCS), Vancouver, BC, May 1995.

*Real-Time Technology in 1995 and 2005*, panel, First IEEE Real-Time Technology and Applications Symposium (RTAS), Chicago, IL, May 1995.

Panelist, OOPSLA '94 Workshop on Flexibility in System Software, Portland, October 1994.

*OS Research In Support Of Networked Multimedia*, invited talk at INTEROP '93, San Francisco, August 1993.

*POSIX Threads*, panel, First USENIX Mach Workshop, Burlington, VT, October 1990.

*The Mach Operating System*, presented at the California Institute of Technology, April 1988.

*The Mach Operating System*, presented at AT&T Bell Laboratories, Murray Hill, NJ, March 1986.

*Matchmaker: An Interface Specification Language for Distributed Processing*, presented at the Software Engineering Institute, Carnegie Mellon University, March 1986.

## **Professional Activities**

### **Conferences Organized**

Program Chair, Ninth Workshop on Hot Topics in Operating Systems (HotOS-IX), Kauai, Hawaii, May 2003.

Co-chair with Frans Kaashoek, Fourth USENIX Symposium on Operating Systems Design and Implementation (OSDI 2000), San Diego, October 23-25, 2000.

Co-chair with Ed Lazowska, First USENIX Windows NT Workshop, Seattle, WA, August 1997.

General Chair, Fifth Workshop on Hot Topics in Operating Systems (HotOS-V), Orcas Island, WA, May 1995.

### **Conference Program and Steering Committees**

Steering Committee, Seventh Symposium on Operating Systems Design and Implementation (OSDI '06), Seattle, WA, November 2006.

Steering Committee, Third Symposium on Networked Systems Design and Implementation (NSDI '06), San Jose, CA, May 2006.

Steering Committee, Third International Conference on Mobile Systems, Applications, and Services (MobiSys '05), Seattle, WA, June 2005.

Steering Committee, Second Symposium on Networked Systems Design and Implementation (NSDI '05), Boston, MA, May 2005.

Steering Committee, Sixth Symposium on Operating Systems Design and Implementation (OSDI '04), San Francisco, CA, December 2004.

Steering Committee, Second International Conference on Mobile Systems, Applications, and Services (MobiSys '04), Boston, MA, June 2004.

Steering Committee, First Symposium on Networked Systems Design and Implementation (NSDI '04), San Francisco, CA, March 2004.

Steering Committee, First International Conference on Mobile Systems, Applications, and Services (MobiSys '03), San Francisco, CA, May 2003.

Steering Committee, Fifth Symposium on Operating Systems Design and Implementation (OSDI '02), Boston, MA, December 2002.

Steering Committee, Second Workshop on Industrial Experiences with Systems Software (WIESS '02), December 2002.

Program Committee, 2002 USENIX Annual Technical Conference, Monterey, CA, June 2002.

Program Committee, Seventh IEEE Real-Time Technology and Application Symposium (RTAS 2001), Taipei, Taiwan, May-June 2001.

Steering Committee, Eighth Workshop on Hot Topics in Operating Systems (HotOS-VIII), Schloss Elmau, Oberbayern, Germany, May 2001.

Steering Committee, First Workshop on Industrial Experiences with Systems Software (WIESS'2000).

Steering Committee, Fourth USENIX Windows Systems Symposium, Seattle, August 2000.

Steering Committee, Fourth USENIX Windows Systems Symposium, Seattle, July 2000.

Program Committee, Sixth IEEE Real-Time Technology and Application Symposium (RTAS 2000), Washington D.C., May 2000.

Program Committee, Eighth International Workshop on Parallel and Distributed Real-Time Systems (WPDRTS 2000), Cancun, Mexico, May 2000.

Program Committee, 20<sup>th</sup> IEEE Real-Time Systems Symposium, Phoenix, Arizona, December 1-3, 1999.

Steering and Program Committees, Third USENIX Windows NT Symposium, Seattle, WA, August 1999.

Program Committee, Ninth International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV '99), Basking Ridge, New Jersey, June 1999.

Program Committee, Fifth IEEE Real-Time Technology and Applications Symposium (RTAS '99), Vancouver, BC, June 1999.

Steering Committee, Seventh Workshop on Hot Topics in Operating Systems (HotOS-VII), March 1999.

Program Committee, Third USENIX Symposium on Operating Systems Design and Implementation (OSDI '99), New Orleans, February 1999.

Steering and Program Committees, Second USENIX Windows NT Symposium, Seattle, WA, August 1998.

Program Committee, Eighth International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV '98), Cambridge, England, July 1998.

Program Committee, Fourth IEEE Real-Time Technology and Applications Symposium (RTAS '98), Denver, June 1998.

Program Committee, Third IEEE Real-Time Technology and Applications Symposium (RTAS '97), Montreal, June 1997.

Steering Committee, Sixth Workshop on Hot Topics in Operating Systems (HotOS-VI), Cape Cod, MA, May 1997.

Program Committee, Seventh International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV '97), St. Louis, MO, May 1997.

Co-local Arrangements Chair, Fifth IEEE International Workshop on Object-Oriented Operating Systems (IWOOOS '96), Seattle, WA, October 1996.

Program Committee, Second IEEE Real-Time Technology and Applications Symposium (RTAS '96), June 1996.

Program Committee and Work-In-Progress Session Czar, 15<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP '95), Copper Mountain Resort, CO, December 1995.

Program Committee, Summer '94 USENIX Conference, Boston, June 1994.

Program Committee, 11<sup>th</sup> IEEE Workshop on Real-Time Operating Systems and Software (RTOS), Seattle, WA, May 1994.

Program Committee, Winter '94 USENIX Conference, San Francisco, January 1994.

Program Committee, 1991 International Workshop on Object Orientation in Operating Systems (IWOOOS '91), October 1991.

Session Chair, Workshop on Object Orientation in Operating Systems, OOPSLA/ECOOP Conference, October 1990.

### ***Outside Reviewer for Conferences***

11<sup>th</sup> International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '04), Boston, MA, October 2004.

19<sup>th</sup> ACM Symposium on Operating Systems Principles, Bolton Landing, NY, October 2003.

Fifth Symposium on Operating Systems Design and Implementation (OSDI '02), Boston, MA, December 2002.

ACM SIGCOMM 2002, Pittsburgh, PA, August 2002.

IEEE Infocom 2002, New York, NY, June 2002.

Eighth ACM Multimedia Conference, Marina del Rey, CA, November 2000.

Ninth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2000), Cambridge, MA, November 2000.

17<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP '99), Kiawah Island Resort, near Charleston, SC, December 1999.

ACM/IFIP Joint International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS '98/PERFORMANCE '98), Madison, Wisconsin, June 1998.

Eighth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '98), October 1998.

Second USENIX Symposium on Operating Systems Design and Implementation (OSDI '96), Seattle, WA, October 1996.

First USENIX Symposium on Operating Systems Design and Implementation (OSDI), Monterey, CA, November 1994.

13<sup>th</sup> ACM Symposium on Operating Systems Principles (SOSP '91), Asilomar, CA, October 1991.

### ***Reviewer for Journals***

Editorial Board Member, Real-Time Systems, Kluwer Academic Publishers

ACM Computing Surveys

ACM Transactions on Computing Systems (TOCS)

ACM Transactions on Programming Languages and Systems (TOPLAS)

Distributed Systems Engineering Journal (DSEJ)

IEEE Transactions on Software Engineering (TSE)

Journal of Parallel and Distributed Computing (JPDC)

Software: Practice and Experience (SP&E), John Wiley & Sons, Ltd.

### ***Industry Forums***

Invited participant in DARPA Information Science and Technology Study Group (ISAT) study group on Probabilistic Methods in Computational Systems and Infrastructure. Gave presentations *Towards Resource Aware Applications and Systems* (April 1999) and *Building Resource Aware Applications and Systems* (July 1999).

Invited participant in National Academy of Engineering Fourth Annual Symposium on Frontiers of Engineering, Irvine, September 1998.

Invited participant in Intel Emerging Communications Forum, Hillsboro, OR, August 1996.

Invited participant in Real-Time Working Group of the ACM Workshop on Strategic Directions in Computing Research, MIT, June 1996.

### ***Advisory Boards***

Harvard Industrial Partners meetings, June 1997 and October 1999.

Georgia Tech systems area technical advisory board, May 1997 and September 1998.

### **Standards Activities**

Significant contributor to POSIX threads (pthreads) standard (ISO/IEC 9945-1:1996 a.k.a. P1003.1c and formerly P1003.4a), October 1989-present:

Primary Technical Reviewer during balloting, October 1990-June 1995.

Member of Interpretations Committee, June 1995-present.

Invited participant in UNIX International Multiprocessor Working Group, 1989-1992.

### **Memberships and Offices**

*President of the Board of Directors*, USENIX Association, April 2004-present.

Board member of the Computing Research Association, July 2002-present.

Vice-President of the Board of Directors, USENIX Association, April 2002-April 2004.

Director, Asia Images Group, November 2000-present.

Secretary of the Board of Directors, USENIX Association, April 2000-April 2002.

Vice-Chair, IEEE Computer Society Technical Committee on Operating Systems (TCOS), January 1999-April 2001.

Member of USENIX Association, 1990-present.

Member of IEEE and IEEE Computer Society Technical Committee on Operating Systems (TCOS), 1989-present, Technical Committee on Real-Time Systems (TC-RTS), 1994-present. Senior Member since December 1998.

Member of  $\Sigma \Xi$  scientific research society, 1986-1992.

Member of ACM and special interest groups SIGOPS and SIGPLAN, 1985-present, SIGCOMM 2002-present.

### **Patents and Patent Applications**

*Software Process Construction*, filed December 6, 2004.

*A Method for Providing Guaranteed Distributed Failure Notification*, filed October 16, 2003.

*Scalable Fault-Tolerant Event Notification Method*, filed October 16, 2003.

*Skip Nets (System and Method for Creating Improved Overlay Networks with an Efficient Distributed Data Structure)*, filed February 3, 2003.

*Method for Multicasting a Message on a Computer Network*, filed June 21, 2002.

*Method and System for Managing Data Records on a Computer Network*, filed March 28, 2002.

*Resource Manager Architecture With Dynamic Resource Allocation Among Multiple Configurations*, filed May 2, 2000.

*Resource Manager Architecture with Resource Allocation Utilizing Priority-Based Preemption*, filed May 2, 2000.

U.S. Patent 6,799,208: *Resource Manager Architecture*, issued September 28, 2004.

U.S. Patent 6,792,445: *Providing Predictable Scheduling of Programs Using a Repeating Precomputed Schedule*, issued September 14, 2004.

U.S. Patent 6,745,222: *Providing Predictable Scheduling of Programs Using Repeating Precomputed Schedules on Discretely Scheduled and/or Multiprocessor Operating Systems*, issued June 1, 2004.

U.S. Patent 6,718,360: *Providing Predictable Scheduling of Programs Using a Repeating Precomputed Schedule*, issued April 6, 2003.

U.S. Patent 6,584,489: *Method and System for Scheduling the Use of a Computer System Resource Using a Resource Planner and a Resource Provider*, issued June 24, 2003.

U.S. Patent 6,490,612: *Providing Predictable Scheduling of Programs Using a Repeating Precomputed Schedule*, issued December 3, 2002.

U.S. Patent 6,317,774: *Providing Predictable Scheduling of Programs Using a Repeating Precomputed Schedule*, issued November 13, 2001.

U.S. Patent 6,282,561: *Method and System for Resource Management with Independent Real Time Applications on a Common Set of Machines*, issued August 28, 2001.

U.S. Patent 6,003,061: *Method and System for Scheduling the Use of a Computer System Resource Using a Resource Planner and a Resource Provider*, issued December 14, 1999.

U.S. Patent 5,812,844: *Method and System for Scheduling the Execution of Threads Using Optional Time-Specific Scheduling Constraints*, issued September 22, 1998.

U.S. Patent 5,473,362: *Video on Demand System Comprising Striped Data Across Plural Storable Devices with Time Multiplex Scheduling*, issued December 5, 1995.

## **Book Reviews**

*Programming With Threads*. Steve Kleiman, Devang Shaw, Bart Smaalders. SunSoft Press, 1996.

*The C++ Programming Language, Second Edition*. Bjarne Stroustrup. Addison-Wesley, 1991.

*The C++ Answer Book*. Tony L. Hansen. Addison-Wesley, 1990.

## **Consulting**

Open Software Foundation – Evaluation of operating systems research directions, 1990.

PERQ Systems Corporation – Language independent RPC stub generator, 1984.

Coalition for Christian Outreach – Conference registration software, 1984.

Formtek – Window system conversion, 1983.

## **Student Mentoring**

### ***Research Interns Supervised***

Chip Killian, Duke University and UCSD – internship with Microsoft Operating Systems Research Group, Summer 2004.

Dejan Kostic, Duke University – internship with Microsoft Systems and Networking Research Group, Summer 2003.

Stefan Saroiu, University of Washington – internships with Microsoft Systems and Networking Research Group, Summer 2000, Summer 2002.

Krishna Gummadi, University of Washington – internship with Microsoft Systems and Networking Research Group, Summer 2001.

John Regehr, University of Virginia – internships with Microsoft Operating Systems Research Group, Summer 1998, Summer 1999.

George Candea, MIT Laboratory for Computer Science – internship with Microsoft Operating Systems Research Group, Summer 1997.

Daniela Roşu, Georgia Tech College of Computing – internship with Microsoft Operating Systems Research Group, Summer 1996.

Marcel-Cătălin Roşu, Georgia Tech College of Computing – internship with Microsoft Operating Systems Research Group, Summer 1996.

### ***Ph.D. Thesis Committee Memberships***

Dejan Kostic, Duke University, graduation expected Fall 2005.

Stefan Saroiu, *Measurement and Analysis of Internet Content Delivery Systems*, University of Washington, graduated December 2004.

John Regehr. *Hierarchical Loadable Schedulers*. University of Virginia, graduated April 2001.

Daniela Roşu. *Dynamic Resource Allocation for Adaptive Real-Time Applications*. Georgia Tech College of Computing, graduated September 1999.

Marcel-Cătălin Roşu. *The Distributed Virtual Communication Machine*. Georgia Tech College of Computing, graduated December 1998.

### **Teaching**

Teaching Assistant, Computer Vision (15-385), for Professor Steven Shafer, Carnegie Mellon, Spring 1988.

Teaching Assistant, Compiler Design (15-411), for Professor Mahadev Satyanarayanan (Satya), Carnegie Mellon, Spring 1987.

### **Service**

Member, Microsoft Research Web Advisory Committee, 1996-2002.

Member, CMU Computer Science Department Facilities Advisory Committee, February 1986-January 1990.