

Christopher D. Gill

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Education

- 1997 – 2002 D.Sc. in Computer Science, Washington University in St. Louis, Dissertation titled “Flexible Scheduling in Middleware for Distributed Rate-Based Real-Time Applications.” Degree awarded May 2002.
- 1991 – 1997 M.S. in Computer Science, University of Missouri-Rolla, Thesis titled “A Dictionary Based on Design Pattern Morphology.” Degree awarded May 1997.
- 1983 – 1987 B.A. *cum laude* in English and Biology, Washington University in St. Louis, Honors Thesis titled “Measure for Measure: The Comedy of Rigor.” Degree awarded May 1987.

Professional Experience

- 2012 – present Professor of Computer Science and Engineering, Washington University, St. Louis, MO.
- 2007 – 2011 Associate Professor of Computer Science and Engineering, Washington University, St. Louis, MO.
- 2001 – 2007 Assistant Professor of Computer Science and Engineering, Washington University, St. Louis, MO.
- 1997 – 2001 Research Associate in Computer Science and Engineering, Washington University, St. Louis, MO.
- 1994 – 1997 Software Developer, SBC Communications, St. Louis, MO.
- 1993 – 1994 Software Developer, Teknivent Corp., St. Louis, MO.
- 1992 – 1993 Software Developer, Saleskit Software, St. Louis, MO.
- 1991 – 1992 System Administrator, Teknivent Corp., St. Louis, MO.
- 1989 – 1991 System Administrator, Prudential Group Health, St. Louis, MO.

Honors and Awards

- 2009 IEEE Service Award from the IEEE Technical Committee on Real-time Systems, for service as General co-Chair for RTAS in April 2009
- 2005 National Science Foundation CAREER award CCF-0448562, titled "Time and Event Based System Software Construction", Washington University, St. Louis, MO, September 2005-August 2011
- 2002 School of Engineering and Applied Sciences Graduate Student Recognition Ceremony Speaker, address titled "Let Us Now Begin", Washington University, St. Louis, MO, May 2002
- 1999 Boeing Fellowship Research Grant, titled "Dynamic Real-Time Scheduling for Multi-Dimensional QoS-Enabled Applications", Washington University, St. Louis, MO, July 1999 - June 2000
- 1998 USENIX Student Research Grant, "Developing and Evaluating a Flexible Framework for Dynamic Distributed Real-Time Scheduling", Washington University, St. Louis, MO, July 1998 - June 1999
- 1983 National Merit Scholar, Washington University, St. Louis, MO, August 1983 - May 1987

Subjects Taught

I emphasize a laboratory-based teaching approach, with personal attention to how students combine fundamentals of computer science with state-of-the-art software engineering techniques, to gain expertise and hands-on experience in designing and implementing high quality software.

- 2000 – 2012 CSE 332S "Object-Oriented Software Development Laboratory"
- 2002 – 2011 CSE 532 "Advanced Multi-Paradigm Software Development"
- 2009 – 2011 CSE 7330 "Real-Time Systems Seminar"
- 2006 – 2009 CSE 432S/533S "Pattern-Oriented Software Design and Development"
- 2007 CSE 436S "Software Engineering Workshop"
- 2004 CSE 131 "Computer Science I"
- 2000 – 2006 CSE 7216 "Research Seminar on Software Systems"
- 2005 CSE 232N "Programming Skills Workshop"

Doctoral Dissertations Supervised

- 2011 Terry Tidwell, Dissertation titled “Utility-Aware Scheduling of Stochastic Real-Time Systems.”
- 2008 Yuanfang Zhang (C. Gill advisor, C. Lu co-advisor), Dissertation titled “Middleware Support for Real-Time Tasks on Distributed and Multi-Core Platforms.”
- 2006 Venkita Subramonian, Dissertation titled “Timed Automata Models for Principled Composition of Middleware.”
- 2005 Radu Handorean (G.-C. Roman advisor, C. Gill co-advisor), Dissertation titled “Context Aware Service Oriented Computing in Mobile Ad Hoc Networks.”
- 2004 Nanbor Wang (C. Gill advisor, D. Schmidt co-advisor), Dissertation titled “Composing Systemic Aspects into Component-Oriented DOC Middleware”

Doctoral Students Currently Advised

David Ferry (co-advised with K. Agrawal), expected graduation in May 2013

Huang-Ming Huang, expected graduation in May 2012.

John Meier (co-advised with R. Chamberlain), expected graduation in December 2012.

Justin Wilson, expected graduation in December 2012.

Sisu Xi (co-advised with C. Lu), expected graduation in May 2013.

Publications

Refereed Journal Papers

1. Y. Zhang, C. Gill, and C. Lu, “Configurable Middleware for Distributed Real-Time Systems with Aperiodic and Periodic Tasks”, IEEE Transactions on Parallel and Distributed Systems 21(3), pp. 393-404, March 2010.
2. R. Glaubius, T. Tidwell, C. Gill, and W. Smart, “Scheduling Policy Design for Autonomic Systems”, International Journal of Autonomous and Adaptive Communication Systems, 2(3), pp. 276-296, June 2009.
3. X. Wang, C. Lu, and C. Gill, “FCS/nORB: A Feedback Control Real-Time Scheduling Service for Embedded ORB Middleware”, Microprocessors and Microsystems, 32(8), pp. 413-424, November 2008.
4. X. Wang, M. Chen, H.-M. Huang, V. Subramonian, C. Lu, and C. Gill, “Control-Based Adaptive Middleware for Real-Time Image Transmission over Bandwidth-Constrained Networks”, IEEE Transactions on Parallel and Distributed Systems 19(6), pp. 779-793, June 2008.

5. V. Subramonian, G. Deng, C. Gill, J. Balasubramanian, L.-J. Shen, W. Otte, D. Schmidt, A. Gokhale, and N. Wang, "The Design and Performance of Component Middleware for QoS-enabled Deployment and Configuration of DRE Systems", Elsevier Journal of Systems and Software 80(5), special issue on Component Based Software Engineering, pp. 668-677, March 2007.
6. R. Sen, R. Handorean, G.-C. Roman, G. Hackmann, and C. Gill, "Knowledge-driven Interactions across Mobile Ad Hoc Networks", International Journal of Cooperative Information Systems, 16(1), pp. 123-153, March 2007.
7. G. Xing, X. Wang, Y. Zhang, C. Lu, R. Pless, and C. Gill, "Integrated Coverage and Connectivity Configuration for Energy Conservation in Wireless Sensor Networks", ACM Transactions on Sensor Networks, 1(1), pp. 36-72, August 2005.
8. C. Gill, J. Gossett, J. Loyall, D. Schmidt, D. Corman, R. Schantz, and M. Atighetchi, "Integrated Adaptive QoS Management in Middleware: An Empirical Case Study", Real-Time Systems, special issue on **selected papers from RTAS 2004**, 29(2-3), pp. 101-130, March 2005.
9. C. Gill, Y. Krishnamurthy, D. Schmidt, I. Pyarali, L. Mgeta, Y. Zhang, and S. Torri, "Enhancing Adaptivity via Standard Dynamic Scheduling Middleware", Journal of the Brazilian Computer Society, special issue on Adaptive Systems, 10(1), pp. 19-30, July 2004.
10. C. Gill, D. Schmidt, and R. Cytron, "Multi-Paradigm Scheduling for Distributed Real-Time Embedded Computing", IEEE Proceedings, Special Issue on Modeling and Design of Embedded Systems, 91(1), pp. 183-197, January 2003.
11. N Wang, D. Schmidt, A. Gokhale, C. Gill, B. Natarajan, C. Rodrigues, J. Loyall, and R. Schantz, "Total Quality of Service Provisioning in Middleware and Applications", Elsevier Journal of Microprocessors and Microsystems, 27(2), pp. 45-54, March 2003.
12. C. Gill, D. Levine, and D. Schmidt "The Design and Performance of a Real-Time CORBA Scheduling Service", Real-Time Systems, special issue on Real-Time Middleware, 20(2), pp. 117-154, March 2001

Refereed Conference Papers

1. J. Lee, S. Xi, S. Chen, L.T.X. Phan, C. Gill, I. Lee, C. Lu and O. Sokolsky, "Realizing Compositional Scheduling through Virtualization", IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'12), April 2012.
2. H.-M. Huang, C. Gill and C. Lu, "Implementation and Evaluation of Mixed-Criticality Scheduling Approaches for Periodic Tasks", IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'12), April 2012.
3. A. Saifullah, K. Agrawal, C. Lu and C. Gill, "Multi-core Real-Time Scheduling for Generalized Parallel Task Models", 32nd Real-Time Systems Symposium (RTSS), Vienna, Austria, November 29-December 2, 2011. **Received RTSS 2011 best student paper award.**

4. S. Xi, J. Wilson, C. Lu, C. Gill, "RT-Xen: Towards Real-Time Hypervisor Scheduling in Xen", International Conference on Embedded Software (EMSOFT), Taipei, Taiwan, October 9-14, 2011.
5. J. Meier, C. Gill, R. Chamberlain, "Towards More Effective Spectrum Use Based on Memory Allocation Models", 35th IEEE Computer Software and Applications Conference (COMPSAC), Munich, Germany, July 18-22, 2011.
6. T. Tidwell, C. Bass, E. Lasker, M. Wylde, C. Gill, and W. Smart, "Scalable Utility Aware Scheduling Heuristics for Real-time Tasks with Stochastic Non-preemptive Execution Intervals", 23rd Euromicro Conference on Real-Time Systems (ECRTS), Porto, Portugal, July 6-8, 2011.
7. T. Tidwell, R. Glaubius, C. Gill, and W. Smart, "Optimizing Expected Time Utility in Cyber-Physical Systems Schedulers", 31st Real-Time Systems Symposium (RTSS), San Diego, CA, November 30-December 3, 2010.
8. R. Glaubius, T. Tidwell, C. Gill, and W. Smart, "Real-Time Scheduling via Reinforcement Learning", 26th Conference on Uncertainty in Artificial Intelligence (UAI), Catalina Island, CA, July 8-11, 2010.
9. R. Glaubius, T. Tidwell, B. Sidoti, D. Pilla, J. Meden, C. Gill and W. Smart, "Scalable Scheduling Policy Design for Open Soft Real-Time Systems," IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Stockholm, Sweden April 12-15, 2010. **Received RTAS 2010 best student paper award.**
10. J. Balasubramanian, A. Gokhale, A. Dubey, F. Wolf, C. Lu, C. Gill and D. Schmidt, "Middleware for Resource-Aware Deployment and Configuration of Fault-tolerant Real-time Systems," IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Stockholm, Sweden April 12-15, 2010.
11. H.-M. Huang, X. Gao, T. Tidwell, C. Gill, C. Lu and S. Dyke, "Cyber-Physical Systems for Real-Time Hybrid Structural Testing: A Case Study", 1st ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), Stockholm, Sweden April 12-15, 2010.
12. R. Sowell, C. Gill, R. Chamberlain, C. Grimm, K. Goldman, M. Tranel, "The Active-Learning Transformation: A Case Study in Software Development and Systems Software Courses", 16th annual CCSC Central Plains regional conference, Parkville, MO, April 9 and 10, 2010.
13. L. Thomas, J. Wilson, G.-C. Roman, C. Gill, "Achieving Coordination Through Dynamic Construction of Open Workflows," ACM/IFIP/USENIX 10th International Middleware Conference (Middleware '09) Urbana-Champaign, IL, USA, November 30 - December 4, 2009
14. Y. Zhang, C. Gill, and C. Lu "Real-Time Performance and Middleware for Multiprocessor and Multicore Linux Platforms", IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA '09), Beijing, China, August 24-26, 2009.

15. J. Balasubramanian, S. Tambe, C. Lu, A. Gokhale, C. Gill, and D. Schmidt “ Adaptive Failover for Real-time Middleware with Passive Replication ” , IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '09), San Francisco, CA, April 13-16, 2009.
16. R. Glaubius, T. Tidwell, W. Smart, and C. Gill, “Scheduling Design and Verification for Open Soft Real-Time Systems” , 29th Real-Time Systems Symposium (RTSS '08), Barcelona, Spain, November 30 - December 3, 2008.
17. Y. Zhang, D. Krecker, C. Gill, C. Lu, and G. Thaker, “Practical Schedulability Analysis for Generalized Sporadic Tasks in Distributed Real-Time Systems” , 20th Euromicro Conference on Real-Time Systems (ECRTS '08), Prague, Czech Republic July 2-4, 2008.
18. T. Tidwell, R. Glaubius, C. Gill, and W. Smart, “Scheduling for Reliable Execution in Autonomic Systems” , 5th International Conference on Autonomic and Trusted Computing (ATC '08), Oslo, Norway, June 23-25, 2008.
19. Y. Zhang, C. Gill and C. Lu, “Reconfigurable Real-Time Middleware for Distributed Cyber-Physical Systems with Aperiodic Events” , 28th International Conference on Distributed Computing Systems (ICDCS '08), Beijing, China June 17 - 20, 2008.
20. R. Sen, G.-C. Roman and C. D. Gill, “ CiAN: A Workflow Engine for MANETs”, 10th International Conference on Coordination Models and Languages (Coordination '08), Oslo, Norway, June 4-6, 2008, LNCS 5052, pp. 280-295.
21. G. Hackmann, C. Gill and G.-C. Roman, “ Extending BPEL for Interoperable Pervasive Computing”, IEEE International Conference on Pervasive Services (ICPS '07), Istanbul, Turkey July 15 - 20, 2007.
22. R. Sen, G. Hackmann, M. Haitjema, G.-C. Roman and C. Gill, “ Coordinating Workflow Allocation & Execution in Mobile Environments”, 9th International Conference on Coordination Models and Languages (Coordination '07), Paphos, Cyprus, June 5-8, 2007, LNCS 4467, pp. 249-267 (acceptance rate 30%).
23. Y. Zhang, C. Lu, C. Gill, P. Lardieri, and G. Thaker, “ Middleware Support for Aperiodic Tasks in Distributed Real-Time Systems”, 13th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '07), Bellvue, WA, USA, April 3-6, 2007, pp. 497-506 (acceptance rate 28%).
24. C. Sanchez, H. Sipma, C. Gill, and Z. Manna, “Distributed Priority Inheritance for Real-Time and Embedded Systems”, 10th International Conference On Principles Of Distributed Systems (OPODIS '06), Bordeaux, France, December 12-15, 2006, pp. 110-125 (acceptance rate 13%).
25. G. Hackmann, M. Haitjema, C. Gill, and G.-C. Roman, “Sliver: A BPEL Workflow Process Execution Engine for Mobile Devices”, 4th International Conference on Service Oriented Computing (ICSOC '06), Chicago, IL, USA, December 4-7, 2006, pp. 503-508, (acceptance rate 25%).
26. V. Subramonian, C. Gill, C. Sanchez, and H. Sipma, “Reusable Models for Timing and Liveness Analysis of Middleware for Distributed Real-Time Embedded Systems”, 6th ACM Conference on Embedded Software (EMSOFT '06), Seoul, South Korea, October 22-25, 2006, pp. 252-261 (acceptance rate 34%).

27. C. Sanchez, H. Sipma, Z. Manna, and C. Gill, "Efficient Distributed Deadlock Avoidance with Liveness Guarantees", 6th ACM Conference on Embedded Software (EMSOFT '06), Seoul, South Korea, October 22-25, 2006, pp. 12-20. **Received SIGBED Frank Anger Memorial student paper award.**
28. H.-M. Huang and C. Gill, "Design and Performance of a Fault-Tolerant Real-Time CORBA Event Service", 18th Euromicro Conference on Real-Time Systems (ECRTS '06), Dresden, Germany, July 5-7, 2006, pp. 33-42 (acceptance rate 24%).
29. A. Borg, A. Wellings, C. Gill, and R. Cytron, "Real-Time Memory Management: Life and Times", 18th Euromicro Conference on Real-Time Systems (ECRTS '06), Dresden, Germany, July 5-7, 2006, pp. 237-247 (acceptance rate 24%).
30. C. Sanchez, H. Sipma, Z. Manna, V. Subramonian, and C. Gill, "On Efficient Distributed Deadlock Avoidance for Real-Time and Embedded Systems", 20th IEEE International Parallel and Distributed Processing Symposium (IPDPS '06), April 25 – 29, 2006, Rhodes, Greece, pp. 1-10 (acceptance rate 24%).
31. C. Sanchez, H. Sipma, V. Subramonian, C. Gill, and Z. Manna, "Thread Allocation Protocols for Distributed Real-Time and Embedded Systems", 25th IFIP WG 6.1 International Conference on Formal Techniques for Networked and Distributed Systems (FORTE '05), Taipei, Taiwan, Oct 2-5, 2005, pp. 159-173 (acceptance rate 38%).
32. Y. Zhang, B. Thrall, S. Torri, C. Gill, and C. Lu, "A Real-Time Performance Comparison of Distributable Threads and Event Channels", 11th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '05), San Francisco, CA, USA, March 7-10, 2005, pp. 497-506 (acceptance rate 33%).
33. T. Aswathanarayana, V. Subramonian, D. Niehaus and C. Gill, "Design and Performance of Configurable Endsystem Scheduling Mechanisms", 11th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '05), San Francisco, CA, USA, March 7-10, 2005, pp. 32-43 (acceptance rate 33%).
34. K. Bryan, L. DiPippo, V. Fay-Wolfe, M. Murphy, J. Zhang, D. Fleeman, D. Juedes, C. Liu, L. Welch, D. Niehaus, and C. D. Gill, "Integrated CORBA Scheduling and Resource Management for Distributed Real-Time Embedded Systems", 11th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '05), San Francisco, CA, USA, March 7-10, 2005, pp. 375-384 (acceptance rate 33%).
35. V. Subramonian, N. Wang, L.-J. Shen, and C. Gill, "The Design and Performance of Configurable Component Middleware for Distributed Real-Time and Embedded Systems", 25th IEEE International Real-Time Systems Symposium (RTSS '04), Lisbon, Portugal, December 5-8, 2004, pp. 252-261 (acceptance rate 22%).
36. N. Wang, C. Gill, D. Schmidt, and V. Subramonian, "Configuring Real-Time Aspects in Component Middleware", International Symposium on Distributed Objects and Applications (DOA '04), Agia Napa, Cyprus, October 25-29, 2004, pp. 1520-1537 (acceptance rate 33%).

37. C. D. Gill, J. Gossett, J. Loyall, D. Schmidt, David Corman, Richard E. Schantz, and Michael Atighetchi, "Integrated Adaptive QoS Management in Middleware: An Empirical Case Study", 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 276-285 (acceptance rate 30%).
38. V. Subramonian, G. Xing, C. Gill, C. Lu, and R. Cytron, "Middleware Specialization for Memory-Constrained Networked Embedded Systems", 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 306-313 (acceptance rate 30%).
39. Y. Krishnamurthy, C. Gill, D. Schmidt, I. Pyarali, L. Mgeta, Y. Zhang, and S. Torri, "The Design and Implementation of Real-Time CORBA 2.0: Dynamic Scheduling in TAO", 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 121-129 (acceptance rate 30%).
40. P. Gore, C. Gill, D. Schmidt, and I. Pyarali, "The Design and Performance of a Real-Time Notification Service", 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 112-120 (acceptance rate 30%).
41. X. Wang, H.-M. Huang, V. Subramonian, C. Lu, and C. Gill, "CAMRIT: Control-based Adaptive Middleware for Real-time Image Transmission", 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 296-305 (acceptance rate 30%).
42. R. Handorean, C. Gill and G.-C. Roman, "Accommodating Transient Connectivity in Ad Hoc and Mobile Settings", 2nd International Conference on Pervasive Computing (Pervasive '04), Vienna, Austria, April 18-24, 2004, pp. 305-322 (acceptance rate 10%).
43. N. Wang and C. Gill, "Improving Real-Time System Configuration via a QoS-aware CORBA Component Model", 37th Hawaii International Conference on System Sciences (HICSS '04), Kona, Hawaii, USA, January 5-9, 2004, pp. 1-10 (acceptance rate 33% in DOCC mini-track of the Software Technology Track).
44. V. Subramonian and C. Gill, "A Generative Programming Framework for Adaptive Middleware", 37th Hawaii International Conference on System Sciences (HICSS '04), Kona, Hawaii, USA, January 5-9, 2004, pp. 1-10 (acceptance rate 33% in AESS mini-track). **Received best paper award in the Software Technology track.**
45. G. Xing, X. Wang, Y. Zhang, C. Lu, R. Pless, and C. Gill, "Integrated Coverage and Connectivity Configuration in Wireless Sensor Networks", 1st ACM Conference on Embedded Networked Sensor Systems (SenSys '03), Los Angeles, CA, USA, November 5-7, 2003, pp. 28-39 (acceptance rate 18%).
46. X. Wang, C. Lu, and C. Gill, "Feedback Control Real-Time Scheduling in ORB Middleware", 9th IEEE Real-Time Technology and Applications Symposium (RTAS '03), Washington, DC, USA, May 27-30, 2003, pp. 37-48 (acceptance rate 40%).

47. C. Gill, F. Kuhns, D. Schmidt, and R. Cytron, "Empirical Differences Between COTS Middleware Scheduling Strategies", 4th International Symposium on Distributed Objects and Applications (DOA '02), Irvine, CA, USA, October 28-30, 2002, pp. 922-948 (acceptance rate 25%).
48. A. Corsaro, D. Schmidt, C. Gill, and R. Cytron, "Formalizing Meta-Programming Techniques to Reconcile Heterogeneous Scheduling Disciplines in Open Distributed Real-Time Systems", 3rd International Symposium on Distributed Objects and Applications (DOA '01), Rome, Italy, September 8-10, 2001, pp. 289-298 (acceptance rate 50%).
49. J. Loyall, J. Gossett, C. Gill, R. Schantz, J. Zinky, P. Pal, R. Shapiro, C. Rodrigues, M. Atighetchi, and D. Karr, "Comparing and Contrasting Adaptive Middleware Support in Wide-Area and Embedded Distributed Object Applications", 21st International Conference on Distributed Computing Systems (ICDCS '01), Phoenix, AZ, USA, April 16-19, 2001, pp. 625-634 (acceptance rate 32%).

Book Chapters

1. G. Deng, D. Schmidt, C. D. Gill, and N. Wang, "QoS-Enabled Component Middleware for Distributed Real-Time and Embedded Systems", Handbook of Real-Time and Embedded Systems (I. Lee, J. Leung, and S. Son, eds.), 2008, CRC Press ch. 15, pp. 1-16, ISBN 978-1-58488-678-5.
2. V. Subramonian and C. Gill, "Middleware Design and Implementation for Networked Embedded Systems", Embedded Systems Handbook (R. Zurawski, ed.), CRC Press, Florida, August 2005, pp. 30.1-30.17. ISBN 0-8493-2824-1 (first edition), 9781439807613 (second edition).
3. R. Sen, R. Handorean, G.-C. Roman, and C. Gill, "Service Oriented Computing Imperatives in Ad Hoc Wireless Settings", Service Oriented Software Engineering: Challenges and Practices, (Z. Stojanovic and Ajantha Dahanayake, eds.), Idea Group Publishing, 2005, pp. 247-269. ISBN 1-59140-427-4
4. N. Wang, D. Schmidt, A. Gokhale, C. Rodrigues, B. tarajan, J. Loyall, R. Schantz, and C. Gill, "QoS-enabled Middleware", Middleware for Communications (Qusay Mahmoud, ed.), New York, Wiley & Sons, 2004, pp. 131-162. ISBN 0-470-86206-8
5. D. Levine, C. Gill, and D. Schmidt, "Object Lifetime Manager – A Complementary Pattern for Controlling Object Creation and Destruction", Design Patterns in Communications Software, Linda Rising, ed., Cambridge University Press, 2001, pp. 495-534. ISBN 0-521-79040-9

Invited Conference Papers

1. X. Gao, N. Castaneda, S. Dyke, S. Xi, C. Gill and C. Lu, Experimental Validation of a Scaled Instrumentation for Real-time Hybrid Testing, 2011 American Control Conference (ACC '11), San Francisco, CA, June 29 - July 1, 2011

2. T. Tidwell, X. Gao, H-M. Huang, C. Lu, S. Dyke, and C. Gill “Towards Configurable Real-Time Hybrid Structural Testing: A Cyber-Physical Systems Approach” , IEEE International Symposium on Object and Component-Oriented Real-Time Distributed Computing (ISORC '09), Tokyo, Japan, March 17-20, 2009.
3. C. Gill, “Resource Virtualization in Real-Time CORBA Middleware”, International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS '06), Seoul, South Korea, October 22-25, 2006.

Invited Talks

1. “CPS Scheduling Policy Design with Utility and Stochastic Execution”, GA Tech Cyber-Physical Systems Summer School, Atlanta, GA, June 23-25, 2010
2. “Non-Preemptive Scheduling Policy Design for Tasks with Stochastic Execution Times,” invited speaker, Cyber-Physical Systems Seminar, University of Pennsylvania, Philadelphia, PA, USA, November 23, 2009
3. “Non-Preemptive Scheduling Policy Design for Tasks with Stochastic Execution Times,” invited speaker, CS Systems Symposium, University of North Carolina, Chapel Hill, NC, USA, November 20, 2009
4. “Towards Assurance for Open Soft Real-Time Systems”, invited speaker, 3rd USAF / Raytheon Layered Assurance Workshop, San Antonio TX, USA, August 5, 2009
5. “Time and Event Based System Software Design and Verification”, invited talk at the Instituto Madrileño de Estudios Avanzados (IMDEA), Madrid, Spain, Fri Jun 27, 2008
6. “Open-source and Proprietary Software Development”, Conference on Open-Source and Proprietary Models of Innovation: Beyond Ideologies, April 4, 2008, Law School, Washington University in St.Louis.
7. “Cyber-Physical System Software for HCMDSS”, Joint Workshop on High Confidence Medical Devices, Software, and Systems (HCMDSS) and Medical Device Plug-and-Play (MD PnP) Interoperability, June 25-27, 2007 Boston, MA
8. “Real-Time ORB Middleware: Standards, Applications, and Variations”, Robotics Domain Task Force invited talk, OMG Technical Committee Meeting, St. Louis, MO, Tuesday, April 25th, 2006. (OMG document robotics/2006-04-09).
9. “Towards Verifiable Embedded Real-Time System Implementation,” Panel on Grand Challenges in Embedded Systems, ERTSI Workshop at RTSS 2005, Miami, FL, Monday, December 5th, 2005
10. “Time and Event Based System Software Construction”, CS Department Invited Talk, University of Missouri-Rolla, Rolla, MO, October 28, 2005.
11. “Time and Event Based System Software Construction”, Invited Lecture in the EECS Department Colloquium Series, Vanderbilt University, Nashville, TN, October 13, 2005.

12. "Advances in Middleware for Distributed Real-Time Embedded Systems", invited presentation to the Washington University School of Engineering and Applied Science National Council Meeting, Thursday, May 5, 2005.
13. "Towards Principled Construction of Trusted System Software", invited presentation, Air Force Research Labs, Dayton, OH, December 15, 2004
14. "Application-Customized System Software", invited talk at The Homag Group, Schopfloch, Germany, December 4, 2004
15. "An Evolution of Endsystem Scheduling Techniques", invited talk, Department of Computer Science, University of Rhode Island, Kingston, RI, September 20, 2004
16. "Washington University Quality of Service (QoS) Research Relevant to NCO DAIT", invited presentation to the Boeing Network Centric Operations DAIT Integration meeting (with John Lockwood and Fred Kuhns), St. Louis, MO, February 16, 2004.
17. "Composing Just Enough Middleware", Invited Lecture, Università degli Studi di Napoli Federico II, Italy, September 29, 2003
18. "Research Challenges in the ORDS Community (in the Coming Years)", WORDS 2003 Fall panel, Anacapri, Italy, October 2003
19. "QoS in Systems of Systems", RTAS 2003 Panel: Advances in Large-Scale Distributed Real-time and Embedded Systems, May 2003
20. "OO and Real-time, a Valuable Combination of Incompatible Concepts", *Panel: Object-orientation and Real-time, a Valuable Combination, or Incompatible Concepts?*, Eighth IEEE International Workshop on Object-oriented Real-time Dependable Systems (WORDS), January, 17, 2003, Guadalajara, Mexico.
21. "Distributed and Mobile Systems", Washington University Center for Security Technologies Annual Review presentation, January 13, 2003, St. Louis, MO
22. "Middleware Research Directions", Invited talk at the Rockwell Collins Advanced Technology Center, January 10, 2003, Cedar Rapids, Iowa.
23. "Programming in a Multi-Paradigm World", Invited talk at SBC Communications, November 11, 2002, St. Louis, MO.
24. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems," Research Staff Interview Talk, BBN Technologies, April 13, 2001.
25. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems," Tenure-Track Faculty Interview Talk, University of Colorado, Boulder, CO, April 9, 2001.
26. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems, Tenure-Track Faculty Interview Talk," Washington University, St. Louis, MO, April 6, 2001.
27. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems, Boeing Fellowship Research Presentation," The Boeing Company, St. Louis, MO, April 5, 2001.

28. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems," Tenure-Track Faculty Interview Talk, Washington State University, Pullman, WA, March 26, 2001.
29. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems," Research Staff Interview Talk, Lockheed Martin Advanced Technology Labs, March 9, 2001.
30. "Implementing the OMG Real-Time CORBA 1.0 Specification in TAO," Presented to the OMG Real-Time PSIG's Real-Time CORBA 1.0 Implementer's Panel and to the DARPA ITO Quorum PI meeting (both in Orlando, FL, December 2000).
31. "Static and Dynamic Scheduling Using the RT-CORBA QoS Framework," presented at the Boeing Company, St. Louis, MO, January 25, 1999.
32. "Dynamic Scheduling for Real-Time CORBA," presented at Real-Time PSIG panel on Dynamic Scheduling, OMG TC Meeting, Washington, DC, January 11, 1999.

Professional Service

IEEE Technical Committee for Real-Time Systems Executive Committee

Treasurer (primary responsibility for RTSS and RTAS conference finances, also serving as overall Finance Chair for CPS Week 2011 and CPS Week 2012), 2009-present

Conference General Chair

General Co-Chair (with Chenyang Lu, Washington University in St. Louis) for the 15th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '09), San Jose, CA, USA, April 13-16, 2009.

General Co-Chair (with Oleg Sokolsky, University of Pennsylvania, and Doug Stuart, Boeing) for the 12th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '06), San Jose, CA, USA, April 4-7, 2006.

Journal Guest Editor

Guest Co-Editor (with Oleg Sokolsky, University of Pennsylvania), Journal of Computer and System Sciences 73(2), special issue on Real-time and Embedded Systems (papers from RTAS '05), March 2007, 241 pages.

Conference Program Committee Chair

Program Vice-Chair (Fault Tolerance and Dependability), 31st IEEE International Conference on Distributed Computing Systems (ICDCS), Minneapolis, MN, USA, June 20-24, 2011.

Program Vice-Chair (Multimedia Systems), 28th IEEE International Conference on Distributed Computing Systems (ICDCS), Beijing, China, June 17-20, 2008.

Program co-Chair (with C. Lu, Washington University), 14th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), St. Louis, MO, USA, April 22-24, 2008.

Middleware and Software Engineering Track Program Committee Chair, 26th IEEE Real-Time System Symposium (RTSS '05), Miami, FL, USA, December 5-8, 2005.

Model-Driven Real-time and Embedded Systems Track Program Committee Chair, 11th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '05), San Francisco, CA, USA, March 7-10, 2005.

Reviewer for Research Panels, Conference Program Committees, and Journals

US National Science Foundation Panelist, Austrian Science Foundation external reviewer.

IEEE Real-Time Systems Symposium (RTSS), IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Euromicro Conference on Real-Time Systems (ECRTS), IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCISA), International Conference on Distributed Computing Systems (ICDCS), International Conference on Middleware (Middleware), International Conference on Coordination Models and Languages (COORDINATION), IEEE International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing (ISORC), ACM SIGBED/SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES), IEEE International Conference on Pervasive Services (ICPS), ACM Symposium on Applied Computing (SAC).

Major journals in real-time, embedded, and distributed systems, including Real-Time Systems, ACM Transactions on Embedded Computer Systems, IEEE Transactions on Parallel and Distributed Systems, and IEEE Transactions on Computers.

Department, School, and University Level Service

2009-present	CSE Department Director of Masters Programs
2009-present	Advisory Board, Center for Violence and Injury Prevention, Brown School of Social Work, Washington University in St. Louis
2011 – present	Founding Chair, Advisory Council for Engineering School Professional Education Programs
2002 – present	CSE Department Representative to Engineering School Graduate Board
2008 – present	CSE Department Representative Engineering IT Advisory Committee
2009-2011	CSE Department Leadership Committee
2009-2011	Engineering School Graduate Engineering Task Force
2009-2010	Engineering School Systems Engineering MS Program Task Force
2008-2009	Speaker of the Engineering School Faculty Assembly
2001 – 2007	Engineering School Representative to the School of Arts and Sciences.

- 2001 – 2005 CSE Department Undergraduate Curriculum Committee.
- 2005 CSE Department Faculty Recruiting Committee, Spring 2005.
- 2004 CSE Department Graduate Recruiting Committee, Spring 2004.

Research Support

Grants and Contracts Awarded as Principal Investigator

- 2011 “CPS: Medium: Collaborative Research: CyberMech, a Novel Run-Time Substrate for Cyber-Mechanical Systems”, Christopher Gill PI, Kunal Agrawal and Chenyang Lu co-PIs, NSF, 9/1/11-8/31/15, \$899,987 at WUSTL (plus \$900,000 to Purdue U.)
- 2007 “CT-ISG: Collaborative Research: Non-bypassable Kernel Services for Execution Security”, Christopher Gill PI, William Smart co-PI, NSF, 8/1/07-7/31/10, \$232,000 at WUSTL (plus \$200,000 to U. Kansas)
- 2006 “Collaborative Research: CSR-EHS: Semantic Domain Integration for Embedded and Hybrid Systems”, NSF, 9/15/06-8/31/10, \$100,000 at WUSTL (plus \$100,000 to U. Kansas and \$100,000 to U. MO-Rolla)
- 2005 “CAREER: Time and Event Based System Software Construction” , NSF, 9/1/05-8/31/11, \$504,000 (including REU and travel supplements)
- 2003 “Embedded Information System Technology Support”, AFRL (subcontract from Boeing), 7/1/03 – 3/31/04, \$24,962
- 2003 “Distributed Scheduling Aspects for Time-Critical Targeting”, DARPA, 4/1/03 – 3/31/05, \$239,790 (plus \$ 957,496 in subcontracts to U. Rhode Island, U. Kansas, and Ohio U.)
- 2002 “Extension of Real-Time Middleware Capabilities for the Hi-Per-D Test-Bed via Enhancements to ACE and TAO Mechanisms and Services” , DARPA, 7/1/02 – 6/30/03 , \$42,087 (plus \$397,913 in a subcontract to OOMWorks)
- 2002 “CORBA Component Model for Real-Time Embedded Applications”, DARPA (subcontract from Boeing), 6/1/02 – 10/31/03, \$244, 695
- 2002 “Fault Tolerant, Latency Bounded CORBA Services” , DARPA (subcontract from Lockheed Martin), 3/2/02 – 12/31/03 , \$348,505
- 2002 “National Experimental Platform for Hybrid Embedded Systems Technology”, DARPA, (subcontract from Lockheed Martin), 2/1/02 – 6/30/03, \$28,000
- 2001 “NEST: Network of Embedded Systems” , DARPA (subcontract from Boeing), 8/6/01 – 5/31/05, \$278,458

Grants and Contracts Awarded as co-Principal Investigator

- 2011 “An Adaptive Property Aware HW/SW Framework for DDDAS”, Ron Cytron PI, Christopher Gill co-PI, AFOSR, 9/30/11-9/29/13, \$131,331 at WUSTL (plus \$168,656 to Iowa State U.)
- 2010 “EAGER: Collaborative Research: Seamless Integration of Conjoined Cyber-Physical System Properties”, Ron Cytron PI, Christopher Gill co-PI, NSF, 10/1/2010 - 9/30/2012, \$150,000 at WUSTL (plus \$150,000 to Iowa State U.)
- 2008 “CSR-DMSS, TM: A Substrate for Personalized Computing In the Real World”, Gruia-Catalin Roman PI through 6/30/2011, Christopher Gill co-PI through 6/30/2011 and PI 7/1/2011-08/31/2012, NSF, 09/01/2008 - 08/31/2012, \$359,504
- 2008 “MRI: Development of a Configurable Cyber-physical Instrument for Real-time Hybrid Testing”, Shirley Dyke PI, Christopher Gill and Chenyang Lu co-PIs, NSF, 7/1/08-6/30/11, \$516,000 (moved to Purdue 1/1/10, with sub-award back to WUSTL)
- 2007 “CPATH-T: Active Learning for Transformation of the Undergraduate Curriculum”, NSF Kenneth Goldman and Cindy Grimm PIs, Christopher Gill, Keith Sawyer, and Roger Chamberlain co-PIs, 8/1/07 – 7/31/11, \$578,987
- 2005 “Adaptive Systems for Collaboration in Multi-mode Mobile Environments”, NSF Gruia-Catalin Roman PI, Christopher Gill co-PI, 12/1/05 – 11/30/10, \$750,000
- 2003 “ARMS II: Aperiodic Scheduling End-to-End”, DARPA (subcontract from Lockheed Martin) Chenyang Lu PI, Christopher Gill co-PI, 10/1/03 – 5/31/06, Direct support: \$196,262

Other Grants and Contracts Managed as Principal Investigator

- 2002 “Design, Implementation, and Demonstration of a High-Performance Distributed Object Environment that Supports End-to-End Deterministic and Statistical QoS Guarantees”, DARPA, PI 4/11/02 – 6/30/02, \$296,962 at WUSTL (plus \$84,000 subcontract to University of California, Irvine)
- 2001 “Weapon Systems Open Architecture”, AFRL (subcontract from Boeing), PI 1/1/01-5/31/03, \$89,363
- 2001 “Adaptive Software Technology Demonstration Phase 2”, AFRL (subcontract from Boeing), PI 1/1/01-7/31/01, \$57,673