

# 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

2016	Elevated to ACM Senior member.
2016	Elevated to IEEE Senior member.
2013	Named a member of the IEEE Computer Society's Golden Core, in recognition of service to the society.
2012	IEEE Computer Society Meritorious Service Award, for service as Treasurer of the IEEE Technical Committee on Real-Time Systems, 2009-2012
2012	ACM Recognition of Service Award, for service as Finance Chair for CPS Week 2012
2009	IEEE Service Award from the IEEE Technical Committee on Real-time Systems, for service as General co-Chair for RTAS 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 hands-on laboratory-based teaching, with personal attention to how fundamentals of computer science can be combined with state-of-the-art software engineering techniques, to give students expertise and hands-on experience in designing and implementing high quality software.

2016 – 2019	CSE 522S "Advanced Operating Systems"
2017 – 2019	CSE 422S "Operating Systems Organization"
2009 – 2019	CSE 7300 "Real-Time Systems Seminar"
2000 – 2015	CSE 332S "Object-Oriented Software Development Laboratory"

2012 – 2015	CSE 425S “Programming Systems and Languages”
2002 – 2015	CSE 532S “Advanced Multi-Paradigm Software Development”
2006 – 2009	CSE 432S/533S “Pattern-Oriented Software Design and Development”
2007	CSE 436S “Software Engineering Workshop”
2000 – 2006	CSE 7216 “Research Seminar on Software Systems”
2005	CSE 232N “Programming Skills Workshop”
2004	CSE 131 “Computer Science I”

### **Doctoral Dissertations Supervised**

2018	David Ferry (K. Agrawal and C. Gill co-advisors), Dissertation titled “Concurrency Platforms for Real-Time and Cyber-Physical Systems.”
2016	Justin Wilson, Dissertation titled “A Transactional Model and Platform for Designing and Implementing Reactive Systems.”
2015	John Meier (R. Chamberlain and C. Gill co-advisors), Dissertation titled “Spectrum Management using Markov Decision Processes.”
2014	Sisu Xi (C. Lu advisor, C. Gill co-advisor), Dissertation titled “Real-Time Virtualization and Cloud Computing.”
2012	Huang-Ming Huang, Dissertation titled “MCFlow: Middleware for Mixed-Criticality Distributed Real-Time Systems.”
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**

Son Dinh (co-advised with K. Agrawal); Steven Harris (co-advised with R. Chamberlain); Haoran Li (co-advised with C. Lu); James Orr; Chao Wang (co-advised with C. Lu); Zhe Wang (co-advised with K. Agrawal)

## Publications

### Refereed Journal Papers

1. C. Wang, C. Gill and C. Lu, "Real-Time Middleware for Cyber-Physical Event Processing," ACM Transactions on Cyber-Physical Systems, Special Issue on *Real-Time* aspects in *Cyber-Physical* Systems, accepted.
2. S. Dinh, J. Li, K. Agrawal, C. Gill and C. Lu, "Blocking Analysis for Spin Locks in Real-Time Parallel Tasks," IEEE Transactions on Parallel and Distributed Systems, 29(4): 789-802, April 2018.
3. J. Li, D. Ferry, S. Ahuja, K. Agrawal, C. Gill and C. Lu, "Mixed-Criticality Federated Scheduling for Parallel Real-Time Tasks," Real-Time Systems, Special Issue on Mixed-Criticality, Multi-Core, and Micro-Kernels, 53(5): 760–811, May 2017.
4. T. Fleming, H.-M. Huang, A. Burns, C. Gill, S. Baruah, C. Lu, "Corrections to and Discussion of 'Implementation and Evaluation of Mixed-criticality Scheduling Approaches for Sporadic Tasks'", ACM Transactions on Embedded Computing Systems, 16(3), Article 77, May 2017
5. M. Xu, L. Phan, O. Sokolsky, S. Xi, C. Lu, C. Gill, and I. Lee, "Cache-Aware Compositional Analysis of Real-Time Multicore Virtualization Platforms," Real-Time Systems 51(6), Special Issue on Best Papers of RTSS '13, pp. 675-723, November 2015.
6. J. Li, Z. Luo, D. Ferry, K. Agrawal, C. Gill and C. Lu, "Global EDF Scheduling for Parallel Real-Time Tasks", Real-Time Systems 51(4), Special Issue on Best Papers of ECRTS '13, pp. 395-439, July 2015.
7. A. Saifullah, D. Ferry, J. Li, K. Agrawal, C. Lu, and C. Gill, "Parallel Real-Time Scheduling of DAGs", IEEE TPDS 25(12), pp. 3242-3252, December 2014.
8. Q. Lu, J. Wilson, Y. Chen, C. Gill, L. Thomas, G.-C. Roman, G. Chen, "Situation-aware Composition and Execution in Dynamic Environments by Automated Planning", Engineering Applications of Artificial Intelligence 35, pp. 215-236, October 2014.
9. C. Kumar, S. Vyas, R. Cytron, C. Gill, J. Zambreno and P. Jones, "Hardware-Software Architecture for Priority Queue Management in Real-time and Embedded Systems", International Journal of Embedded Systems 6(4), pp. 319-334, September 2014.
10. H.-M. Huang, C. Gill and C. Lu, "Implementation and Evaluation of Mixed-Criticality Scheduling Approaches for Sporadic Tasks", ACM TECS 13(4s), Special Issue on Real-Time and Embedded Technology and Applications, Article 126, April 2014.
11. A. Saifullah, J. Li, K. Agrawal, C. Lu and C.D. Gill, "Multi-core Real-Time Scheduling for Generalized Parallel Task Models", Real-Time Systems, Special Issue on Best Papers of RTSS'11, Volume 49, Issue 4, pages 404-435, July 2013.
12. 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.

13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. G. Xing, X. Wang, Y. Zhang, C. Lu, R. Pless, and C. Gill, "Integrated Coverage and Connectivity Configuration for Energy Conservation in Sensor Networks", *ACM Transactions on Sensor Networks*, 1(1), pp. 36-72, August 2005.
19. 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.
20. 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.
21. C. Gill, D. Schmidt, and R. Cytron, "Multiparadigm 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.
22. 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.
23. 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. A. Zou, J. Leng, X. He, Y. Zu, C. Gill, V. Reddi, S. Zhang, “Voltage-stacked GPUs: A Control Theory Driven Cross-Layer Solution for Practical Voltage Stacking in GPUs,” 51<sup>st</sup> IEEE/ACM International Symposium on Microarchitecture (MICRO 51), Fukuoka, Japan, October 2018.
2. J. Orr, C. Gill, K. Agrawal, S. Baruah, C. Cianfarani, P. Ang, and C. Wong, “Elasticity of Workloads and Periods of Parallel Real-Time Tasks,” 26<sup>th</sup> International Conference on Real-Time Networks and Systems (RTNS '18), Poitiers, France, October 2018.
3. H. Li, M. Xu, C. Li, C. Lu, C. Gill, L.T.X. Phan, I. Lee and O. Sokolsky, “Multi-Mode Virtualization for Soft Real-Time Systems, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'18), April 2018.
4. C. Wang, C. Gill and C. Lu, Real-Time Middleware for Cyber-Physical Event Processing, ACM/IEEE International Symposium on Quality of Service (IWQoS'17), June 2017.
5. J. Li, S. Dinh, K. Kieselbach, K. Agrawal, C. Gill and C. Lu, [Randomized Work Stealing for Large Scale Soft Real-time Systems](#), IEEE Real-Time Systems Symposium (RTSS), Porto, Portugal, December 2016.
6. J. Meier, C. Gill, and R. Chamberlain, Combining Admission and Modulation Decisions for Wireless Embedded Systems, 19<sup>th</sup> IEEE Symposium on Real-Time Computing (ISORC), Heslington, York, UK, May 2016.
7. J. Li, D. Ferry, S. Ahuja, K. Agrawal, C. Gill and C. Lu, Mixed-Criticality Federated Scheduling for Parallel Real-Time Tasks, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Vienna, Austria, April 2016. **Outstanding Paper Award.**
8. S. Xi, C. Li, C. Lu, C. Gill, M. Xu, L. Phan, I. Lee, O. Sokolsky, RT-OpenStack: CPU Resource Management for Real-Time Cloud Computing, IEEE International Conference on Cloud Computing (CLOUD), New York, NY, USA, June 2015.
9. C. Li, S. Xi, C. Lu, C. Gill and R. Guerin, Prioritizing Soft Real-Time Network Traffic in Virtualized Hosts Based on Xen, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Seattle, WA, USA, April 2015.
10. S. Xi, M. Xu, C. Lu, L. Phan, C. Gill, O. Sokolsky, I. Lee, “Real-Time Multi-Core Virtual Machine Scheduling in Xen”, International Conference on Embedded Software (EMSOFT), New Delhi, India, October 2014.
11. D. Ferry, G. Bunting, A. Megareh, S. Dyke, A. Prakash, K. Agrawal, C. Gill and C. Lu, “Real-Time System Support for Hybrid Structural Simulation”, International Conference on Embedded Software (EMSOFT), New Delhi, India, October 2014.
12. J. Li, K. Agrawal, C. Gill, and C. Lu, “Federated Scheduling for Stochastic Parallel Real-time Tasks”, 20<sup>th</sup> IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), Chongqing, China, August 2014.
13. J. Li, J.-J. Chen, K. Agrawal, C. Lu, C. Gill and A. Saifullah, “Analysis of Federated and Global Scheduling for Parallel Real-Time Tasks”, Euromicro Conference on Real-Time Systems (ECRTS), Madrid, Spain, July 2014.

14. D. Ferry, A. Megareh, G. Bunting, A. Prakash, K. Agrawal, C. Gill, C. Lu and S. Dyke, "On the Performance of a Highly Parallelizable Concurrency Platform for Real-Time Hybrid Simulation", 6<sup>th</sup> World Conference on Structural Control and Monitoring (6WCSCM), Barcelona, Spain, July 2014.
15. M. Xu, L.T.X. Phan, I. Lee, O. Sokolsky, S. Xi, C. Lu and C. Gill, Cache-Aware Compositional Analysis of Real-Time Multicore Virtualization Platforms, IEEE Real-Time Systems Symposium, (RTSS), Vancouver, BC, Canada, December 2013.
16. J. Meier, S. Sistla, B. Karaus, C. Gill, R. Chamberlain, and T. Tidwell, "Assessing the Appropriateness of using Markov Decision Processes for RF Spectrum Management", 16th ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM), Barcelona, Spain, November 2013.
17. J. Li, K. Agrawal, C. Lu and C. Gill, "Analysis of Global EDF for Parallel Tasks", Euromicro Conference on Real-Time Systems (ECRTS), Paris, France, July 2013. **Outstanding paper award.**
18. S. Xi, C. Li, C. Lu and C. Gill, "Prioritizing Local Inter-Domain Communication in Xen", ACM/IEEE International Symposium on Quality of Service (IWQoS), Montreal, Canada, June 2013.
19. D. Ferry, J. Li, M. Mahadevan, K. Agrawal, C.D. Gill and C. Lu, "A Real-Time Scheduling Service for Parallel Tasks", IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), Philadelphia, PA, April 2013.
20. H. Huang, C. Gill, C. Lu, "MCFlow: a Real-time Multi-core Aware Middleware for Dependent Task Graphs", 18<sup>th</sup> IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), Seoul, Korea, August 2012.
21. 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), Beijing, China, April 2012.
22. 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), Beijing, China, April 2012.
23. A. Saifullah, K. Agrawal, C. Lu and C. Gill, "Multi-core Real-Time Scheduling for Generalized Parallel Task Models", 32<sup>nd</sup> Real-Time Systems Symposium (RTSS), Vienna, Austria, November 29-December 2, 2011. **Best student paper award.**
24. 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.
25. J. Meier, C. Gill, R. Chamberlain, "Towards More Effective Spectrum Use Based on Memory Allocation Models", 35<sup>th</sup> IEEE Computer Software and Applications Conference (COMPSAC), Munich, Germany, July 18-22, 2011.

26. 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", 23<sup>rd</sup> Euromicro Conference on Real-Time Systems (ECRTS), Porto, Portugal, July 6-8, 2011.
27. T. Tidwell, R. Glaubius, C. Gill, and W. Smart, "Optimizing Expected Time Utility in Cyber-Physical Systems Schedulers", 31<sup>st</sup> Real-Time Systems Symposium (RTSS), San Diego, CA, November 30-December 3, 2010.
28. R. Glaubius, T. Tidwell, C. Gill, and W. Smart, "Real-Time Scheduling via Reinforcement Learning", 26<sup>th</sup> Conference on Uncertainty in Artificial Intelligence (UAI), Catalina Island, CA, July 8-11, 2010.
29. 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. **Best student paper award.**
30. 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.
31. 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", 1<sup>st</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPs), Stockholm, Sweden April 12-15, 2010.
32. 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", 16<sup>th</sup> annual CCSC Central Plains regional conference, Parkville, MO, April 9 and 10, 2010.
33. 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
34. 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.
35. 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.
36. 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.



37. Y. Zhang, D. Kreckler, 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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%).
43. 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%).
44. C. Sanchez, H. Sipma, C. Gill, and Z. Manna, "Distributed Priority Inheritance for Real-Time and Embedded Systems", 10<sup>th</sup> International Conference On Principles Of Distributed Systems (OPODIS '06), Bordeaux, France, December 12-15, 2006, pp. 110-125 (acceptance rate 13%).
45. G. Hackmann, M. Haitjema, C. Gill, and G.-C. Roman, "Sliver: A BPEL Workflow Process Execution Engine for Mobile Devices", 4<sup>th</sup> International Conference on Service Oriented Computing (ICSOC '06), Chicago, IL, USA, December 4-7, 2006, pp. 503-508, (acceptance rate 25%).
46. V. Subramonian, C. Gill, C. Sanchez, and H. Sipma, "Reusable Models for Timing and Liveness Analysis of Middleware for Distributed Real-Time Embedded Systems", 6<sup>th</sup> ACM Conference on Embedded Software (EMSOFT '06), Seoul, South Korea, October 22-25, 2006, pp. 252-261 (acceptance rate 34%).
47. C. Sanchez, H. Sipma, Z. Manna, and C. Gill, "Efficient Distributed Deadlock Avoidance with Liveness Guarantees", 6<sup>th</sup> ACM Conference on Embedded Software (EMSOFT '06), Seoul, South Korea, October 22-25, 2006, pp. 12-20. **SIGBED Frank Anger Memorial student paper award.**
48. 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%).

49. 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%).
50. C. Sanchez, H. Sipma, Z. Manna, V. Subramonian, and C. Gill, "On Efficient Distributed Deadlock Avoidance for Real-Time and Embedded Systems", 20<sup>th</sup> IEEE International Parallel and Distributed Processing Symposium (IPDPS '06), April 25 – 29, 2006, Rhodes, Greece, pp. 1-10 (acceptance rate 24%).
51. 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%).
52. 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%).
53. 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%).
54. 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%).
55. 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", 25<sup>th</sup> IEEE International Real-Time Systems Symposium (RTSS '04), Lisbon, Portugal, December 5-8, 2004, pp. 252-261 (acceptance rate 22%).
56. 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%).
57. 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", 10<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 276-285 (acceptance rate 30%).
58. V. Subramonian, G. Xing, C. Gill, C. Lu, and R. Cytron, "Middleware Specialization for Memory-Constrained Networked Embedded Systems", 10<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 306-313 (acceptance rate 30%).

59. 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", 10<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 121-129 (acceptance rate 30%).
60. P. Gore, C. Gill, D. Schmidt, and I. Pyarali, "The Design and Performance of a Real-Time Notification Service", 10<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 112-120 (acceptance rate 30%).
61. X. Wang, H.-M. Huang, V. Subramonian, C. Lu, and C. Gill, "CAMRIT: Control-based Adaptive Middleware for Real-time Image Transmission", 10<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '04) Toronto, Canada, May 25-28, 2004, pp. 296-305 (acceptance rate 30%).
62. R. Handorean, C. Gill and G.-C. Roman, "Accommodating Transient Connectivity in Ad Hoc and Mobile Settings", 2<sup>nd</sup> International Conference on Pervasive Computing (Pervasive '04), Vienna, Austria, April 18-24, 2004, pp. 305-322 (acceptance rate 10%).
63. N. Wang and C. Gill, "Improving Real-Time System Configuration via a QoS-aware CORBA Component Model", 37<sup>th</sup> 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).
64. V. Subramonian and C. Gill, "A Generative Programming Framework for Adaptive Middleware", 37<sup>th</sup> 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). **Best paper award in the Software Technology track.**
65. G. Xing, X. Wang, Y. Zhang, C. Lu, R. Pless, and C. Gill, "Integrated Coverage and Connectivity Configuration in Wireless Sensor Networks", 1<sup>st</sup> ACM Conference on Embedded Networked Sensor Systems (SenSys '03), Los Angeles, CA, USA, November 5-7, 2003, pp. 28-39 (acceptance rate 18%).
66. X. Wang, C. Lu, and C. Gill, "Feedback Control Real-Time Scheduling in ORB Middleware", 9<sup>th</sup> IEEE Real-Time Technology and Applications Symposium (RTAS '03), Washington, DC, USA, May 27-30, 2003, pp. 37-48 (acceptance rate 40%).
67. C. Gill, F. Kuhns, D. Schmidt, and R. Cytron, "Empirical Differences Between COTS Middleware Scheduling Strategies", 4<sup>th</sup> International Symposium on Distributed Objects and Applications (DOA '02), Irvine, CA, USA, October 28-30, 2002, pp. 922-948 (acceptance rate 25%).
68. A. Corsaro, D. Schmidt, C. Gill, and R. Cytron, "Formalizing Meta-Programming Techniques to Reconcile Heterogeneous Scheduling Disciplines in Open Distributed Real-Time Systems", 3<sup>rd</sup> International Symposium on Distributed Objects and Applications (DOA '01), Rome, Italy, September 8-10, 2001, pp. 289-298 (acceptance rate 50%).

69. 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", 21<sup>st</sup> 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. J. White, C. Gill, and D. Schmidt, "Elastic Software Infrastructure to Support Computing Clouds for CPS (CC4CPS)", 17<sup>th</sup> IEEE International Symposium on Object and Component-Oriented Real-Time Distributed Computing (ISORC), Reno, Nevada, USA, June 2014.
2. 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), San Francisco, CA, USA, June 29 - July 1, 2011
3. 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), Tokyo, Japan, March 17-20, 2009.
4. 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. C. Gill, "Towards Bespoke Graceful Degradation in Mixed-Criticality Systems," panel presentation at the 6<sup>th</sup> International Workshop on Mixed-Criticality Systems (WMC), at RTSS 2018, December 11, 2018.
2. C. Gill, "Advances in Parallel Real-Time Cyber-Physical Systems," Seminar talk at the University of California, Berkeley, December 3, 2018.
3. C. Gill, "Advances in Parallel Real-Time Cyber-Physical Systems," Seminar talk at George Washington University, November 14, 2018.
4. C. Gill, "Future Cyber-Physical Systems Platforms," Future of CPS Panel, International Workshop on Next-Generation Cyber-Physical Systems, University of Virginia, September 15, 2018.
5. C. Gill, "Advances in Parallel Real-Time Cyber-Physical Systems," Seminar talk at the University of Texas at Dallas, February 16, 2018.
6. C. Gill, "Cyber-Physical Semantics in Real-Time Hybrid Simulation," Seminar talk at the Missouri University of Science and Technology, Rolla, MO, September 1, 2015.
7. C. Gill, "Building Current and Future Faculty (a Report from the Front Lines)," Workshop on 21<sup>st</sup> Century Cyber-Physical Systems Education: Developing Solutions, National Academy of Sciences, Washington, DC, USA, October 3, 2014.
8. "Real-Time Scheduling and Platform Support for Cyber-Mechanical Systems", CS Dept. colloquium presentation at the University of Iowa, Iowa City, IA, September 20, 2013
9. "Progress and Challenges for Real-Time Virtualization", keynote talk at the 1<sup>st</sup> Workshop on Virtualization for Real-Time Embedded Systems (VtRES '13 at RTCSA '13), Taipei, Taiwan, August 21, 2013
10. "Real-Time Scheduling and Platform Support for Cyber-Mechanical Systems", CS Dept. colloquium presentation at George Washington University, Washington, DC, March 13, 2013
11. "CPS Scheduling Policy Design with Utility and Stochastic Execution", GA Tech Cyber-Physical Systems Summer School, Atlanta, GA, June 23-25, 2010
12. "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
13. "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
14. "Towards Assurance for Open Soft Real-Time Systems", invited speaker, 3<sup>rd</sup> USAF / Raytheon Layered Assurance Workshop, San Antonio TX, USA, August 5, 2009
15. "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
16. "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.

17. "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
18. "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).
19. "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
20. "Time and Event Based System Software Construction", CS Department Invited Talk, University of Missouri-Rolla, Rolla, MO, October 28, 2005.
21. "Time and Event Based System Software Construction", Invited Lecture in the EECS Department Colloquium Series, Vanderbilt University, Nashville, TN, October 13, 2005.
22. "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.
23. "Towards Principled Construction of Trusted System Software", invited presentation, Air Force Research Labs, Dayton, OH, December 15, 2004
24. "Application-Customized System Software", invited talk at The Homag Group, Schopfloch, Germany, December 4, 2004
25. "An Evolution of Endsystem Scheduling Techniques", invited talk, Department of Computer Science, University of Rhode Island, Kingston, RI, September 20, 2004
26. "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.
27. "Composing Just Enough Middleware", Invited Lecture, Università degli Studi di Napoli Federico II, Italy, September 29, 2003
28. "Research Challenges in the ORDS Community (in the Coming Years)", WORDS 2003 Fall panel, Anacapri, Italy, October 2003
29. "QoS in Systems of Systems", RTAS 2003 Panel: Advances in Large-Scale Distributed Real-time and Embedded Systems, May 2003
30. "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.
31. "Distributed and Mobile Systems", Washington University Center for Security Technologies Annual Review presentation, January 13, 2003, St. Louis, MO
32. "Middleware Research Directions", Invited talk at the Rockwell Collins Advanced Technology Center, January 10, 2003, Cedar Rapids, Iowa.

33. "Programming in a Multi-Paradigm World", Invited talk at SBC Communications, November 11, 2002, St. Louis, MO.
34. "Applying a Flexible Middleware Scheduling Framework to Optimize Distributed and Embedded Real-Time Systems," Research Staff Interview Talk, BBN Technologies, April 13, 2001.
35. "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.
36. "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.
37. "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.
38. "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.
39. "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.
40. "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).
41. "Static and Dynamic Scheduling Using the RT-CORBA QoS Framework," presented at the Boeing Company, St. Louis, MO, January 25, 1999.
42. "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**

### **ACM Special Interest Group on Embedded Systems (SIGBED)**

Vice-chair, 2013-2015

### **IEEE Technical Committee for Real-Time Systems Executive Committee**

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

Executive Committee Member (Chair of Sub-committee on Cost Savings), 2016-2017

## **Journal Editorial Boards**

Associate Editor for ACM Transactions on Cyber-Physical Systems, 2015-present

Subject Area Editor for Elsevier Journal of Systems Architecture, 2018-present

## **Conference General Chair**

General co-Chair (with Bruno Sinopoli, Carnegie Mellon University) for the 9<sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS '18), Porto, Portugal, April 2018.

General Chair for the 36<sup>th</sup> IEEE Real-Time Systems Symposium (RTSS '15), San Antonio, TX, December 1-4, 2015.

General Co-Chair (with Chenyang Lu, Washington University in St. Louis) for the 15<sup>th</sup> 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 12<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '06), San Jose, CA, USA, April 4-7, 2006.

## **Conference Technical Program Committee Chair**

Program co-Chair (with Ye-Qiong Song, LORIA, Université de Lorraine, France), 27<sup>th</sup> International Conference on Real-Time Networks and Systems, (RTNS '19), Toulouse, France, November 2019.

Program co-Chair (with Bruno Sinopoli, Carnegie Mellon University), 8<sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS '17), Pittsburgh, PA, April 2017.

Program Chair, 35<sup>th</sup> IEEE Real-Time Systems Symposium (RTSS '14), Rome, Italy, December 2014.

Program Vice-Chair (Real-Time Systems Track), 19<sup>th</sup> IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA '13), Taipei, Taiwan, August 19-22, 2013.

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

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

Program co-Chair (with Chenyang Lu, Washington University), 14<sup>th</sup> 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, 26<sup>th</sup> 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, 11<sup>th</sup> IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS '05), San Francisco, CA, USA, March 7-10, 2005.

### **Journal Guest Editor**

Guest Co-Editor (with Li-Pin Chang, National Chiao-Tung University, and Jin Nakazawa, Keio University and Tei-Wei Kuo, National Taiwan University), ACM Transactions on Embedded Computing Systems, special issue on Real-time, Embedded, and Cyber-Physical Systems and Applications (papers from RTCSA '13), to appear.

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.

### **Reviewer for Research Panels, Conference Program Committees, and Journals**

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

Technical program committee member for IEEE Real-Time Systems Symposium (RTSS), ACM SIGBED International Conference on Embedded Software (EMSOFT), 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 (RTCSA), 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**

2008 – present	CSE Department Representative to Engineering IT Advisory Committee
2009 – 2019	CSE Department Director of Masters Programs
2013 – 2019	CSE Faculty Program Advisor for Sever MISM, MCSM Programs
2017 – 2019	Chair, Engineering School Graduate Board
2017 – 2019	Engineering School Masters Curriculum and Policy Committee (Faculty Chair of the committee 2018-2019)
2012 – 2017	CSE Department Representative to the Engineering Graduate Board
2009 – 2014	Affiliated Faculty and Advisory Board Member, Center for Violence and Injury Prevention, Brown School of Social Work, Washington University
2011 – 2014	Founding Chair, Advisory Council for Engineering School Professional Education Programs
2005, 2012 – 2014	CSE Department Faculty Recruiting Committee (Chair 2013-2014)
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.
2004	CSE Department Graduate Recruiting Committee, Spring 2004.

## **Research Support**

### **Grants and Contracts Awarded as Principal Investigator**

- 2013 “CPS Synergy: Collaborative Research: Safety-Feature Modeling and Adaptive Resource Management for Mixed-Criticality Cyber-Physical Systems”, Christopher Gill PI, Chenyang Lu co-PI, NSF, 10/1/13-9/30/17, \$398,305 at WUSTL (+ \$600,000 to UPenn)
- 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, \$919,987 at WUSTL including REU supplements (+ \$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 (+ \$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 (+ \$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**

- 2018 “CSR: Small: Dynamically Customizable Safety-Critical Embedded Systems”, Sanjoy Baruah PI, Christopher Gill co-PI, NSF, 9/2018-8/2021, \$484,697
- 2017 “CPS: Medium: Modular Power Orchestration at the Meso-scale”, Xuan (Silvia) Zhang PI, Christopher Gill co-PI, NSF, 9/15/17-8/31/21, \$936,504
- 2016 “Dynamic Real-time Virtualization and Cloud Computing”, Chenyang Lu PI, Christopher Gill co-PI, ONR, 1/1/16-12/31/18, \$610,330 at WUSTL (+ \$750k to UPenn)
- 2015 “NeTS: Medium: Provisioning, enforcing, and pricing temporal service differentiation in virtualized networked environments,” Roch Guerin, PI, Chris Gill and Chenyang Lu, co-PIs, NSF, 10/1/15-9/30/19, \$409,362
- 2015 “PAAS Messaging Middleware,” Chenyang Lu, PI, Roch Guerin and Chris Gill, co-PIs, Huawei, 11/1/15-10/31/16, \$192,104
- 2013 “XPS: FP: Real-Time Scheduling of Parallel Tasks”, Kunal Agrawal, PI, Christopher Gill and Chenyang Lu co-PIs, NSF, 9/1/13-8/31/17, \$749,950
- 2013 “Theory and Virtualization Platform for Compositional Real-Time Systems”, Chenyang Lu PI, Christopher Gill co-PI, ONR, 8/15/13-8/14/16, \$303,788 at WUSTL (+ \$455,822 to UPenn)

- 2013 “CSR: Workshop: Computing Clouds for Cyber Physical Systems (CC-4-CPS)”, Doug Schmidt (Vanderbilt) PI, Christopher Gill (WUSTL) and Jules White (VaTech) co-PIs, NSF, 9/15/12-12/31/13 (\$73,738 at Vanderbilt)
- 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 (+ \$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 (+ \$150,000 to Iowa State U.)
- 2008 “CSR-DMSS, TM: A Substrate for Personalized Computing In the Real World”, Gruiacatalin 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 Gruiacatalin 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 (+ \$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