

Tajana Šimunić Rosing

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INTERESTS energy-efficient computing, embedded systems hardware and software design

PROFESSIONAL EXPERIENCE

05-pres. **UCSD** - Associate Professor in the CSE Department;

08-pres Executive board member of San Diego Supercomputing Center

- leading projects as a PI, co-PI or senior personnel totaling more than \$50M
- published over 80 papers and book chapters; got a nomination for one of the best papers in 10 years of DATE, best paper award at VLSI-SOC'09, 3 best paper nominations, keynote speeches, a number of invited papers and over 60 invited talks in industry and academia
- leading a research team focused on energy-efficient system design:
 - thermal and power management in multiscale systems
 - head of the Large Scale Systems thrust within \$3M MuSyC center
 - funded by NSF, MARCO-GSRC & MuSyC, Sun Microsystems, Cisco, Google, Qualcomm, Intel, IBM, CNS, UC Micro
 - in collaboration with: Microsoft, HP Labs, Sun Microsystems, Qualcomm, Cisco, Intel, Texas Instruments, IBM Zurich & TJ Watson, Google, Yahoo, EPFL
 - active sensing platform powered via energy harvesting for structural health monitoring, funded by LANL and DOE; filed a patent and deployed on a bridge in NM
 - resource management in heterogeneous wireless sensor networks
 - funded by NSF, NIH, DOE & LANL, CNS, Sun Microsystems, Qualcomm, HP Labs
 - In collaboration with: UCSD School of Medicine, SDSC, LANL, Sun Microsystems, Qualcomm, Seacoast Science, HP Labs, University of Bologna, Stanford, Georgia Tech
- teaching embedded systems and computer engineering classes

98 – 04 **HEWLETT-PACKARD LABS**

97 – 04 **STANFORD UNIVERSITY**

- led a team of researchers with the goal of developing new technologies targeted at wireless media market, interfaced with HP divisions, filed five patents
- obtained project funding, started a number of university collaborations
- moderated conference sessions and served on technical paper committees

93 – 97 **ALTERA CORPORATION**

- patented and implemented a new testing methodology for FPLDs that enabled Altera to get to market 4 months sooner with FLEX 10k family
- developed, evaluated and managed simulation and testing for 5 product families

92 – 93 **UNIVERSITY OF ARIZONA**

- developed a framework for design automation of high-speed VLSI interconnect geometries; the simulator has been used by member companies of Semiconductor Research Corporation

88 – 92 **NORTHERN ARIZONA UNIVERSITY**

- modeled tether dynamics for orbiting stations to aid in the design of orbiting telescopes
- designed an image processing environment for medical applications; the environment became a part of MRI tool analysis suite at Phoenix medical center
- designed an award-winning switched capacitor filter for TI

EDUCATION PhD in Electrical Engineering, Stanford University, 2001, 4.0 GPA.

Thesis: *Energy Efficient System Design and Utilization*

MS in Engineering Management, Stanford University, 2000, 4.0 GPA.

MS in Electrical and Computer Engineering, University of Arizona, 1993, 4.0 GPA.

Thesis: *VLSI Interconnect Design Automation.*

BS in Electrical Engineering, Northern Arizona University, 1992, 4.0 GPA.

BOOK CHAPTERS

1. A. Coskun, J. Ayala, D. Atienza, T. Simunic Rosing, "Thermal Modeling and Management of Liquid Cooled 3D Stacked Architectures," invited for publication in a book; Editors: J. Becker, M. Johann and R. Reis; Springer Publishers, 2010.
2. Y. Lu, E. Chung, T. Simunic, L. Benini, G. De Micheli: "Quantitative Comparison of Power Management Algorithms", in *The Most Influential Papers of 10 Years DATE*, Edited by Lauwereins, Rudy; Madsen, Jan, Springer-Verilog, 2008.
3. J. Kim, T. Simunic Rosing, "Power-aware resource management techniques for low-power embedded systems," in Handbook of Real-Time and Embedded Systems, Edited by S. H. Son, I. Lee, J. Y-T Leung, Taylor-Francis Group LLC, 2006.
4. T. Simunic: "Dynamic Management of Power Consumption" in Power Aware Computing, Edited by R. Graybill, R. Mehlem, Kluwer Academic Publishers pp.102-125, 2002.

JOURNAL PAPERS

1. G. Dhiman, G. Marchetti, T. Simunic Rosing, "vGreen: A System for Energy Efficient Management of Virtualized Environments," under review in Special Issue of ACM TODAES, 2010.
2. E. Regini, D. Lim, T. Simunic Rosing, "Energy management in heterogeneous wireless sensor networks," under review in ACM TOSN, 2010.
3. J. Recas, C. B, T. Simunic Rosing, D. Atienza, "Energy management in SHM", to appear in JIMSS, 2010.
4. S. Sharifi, T. Simunic Rosing, "Accurate direct and indirect on-chip temperature sensing for efficient dynamic thermal management," to appear in IEEE TCAD, 2010.
5. A. Coskun, T. Simunic Rosing, "Utilizing Predictors for Efficient Thermal Management in Multiprocessor SoCs," IEEE TCAD, 2009.
6. G. Dhiman, T. Simunic Rosing, "Using online learning for system level power management," IEEE TCAD, 2009.
7. A. Coskun, T. Simunic Rosing, K. Whisnant, K. Gross, "Static and dynamic temperature-aware scheduling for multiprocessor SoCs," IEEE TVLSI, 2008.
8. T. Simunic Rosing, K. Mihic, G. De Micheli, "Power and reliability management of SOCs," IEEE Transactions on VLSI, 2007.
9. G. Park, T. Simunic Rosing, M. Todd, C. Farrar, W. Hodgkiss, "Energy Harvesting for Structural Health Monitoring in Sensor Networks," ASCE Journal, 2007.
10. A. Coskun, T. Simunic Rosing, K. Mihic, G. De Micheli, Y. Leblebici, "Analysis and Optimization of MPSoC Reliability," Invited paper to Journal of Low-Power Electronics, April 2006.
11. T. Simunic, S. Boyd, P. Glynn: "Managing Power Consumption in Networks on Chips," IEEE Transactions on VLSI, pp. 96- 107, Jan 2004.
12. A. Acquaviva, T. Simunic, V. Deolalikar, S. Roy: "Remote Power Control of Wireless Network Interfaces", Special Issue of Journal of Embedded Computing, No. 3, 2004.
13. B. Delaney, T. Simunic, N. Jayant: "Power Aware Distributed Speech Recognition for Wireless Mobile Devices," Special Issue on Embedded Systems for Multimedia, IEEE Design & Test, 2004.
14. A. Peymandoust, T. Simunic, G. De Micheli: "Complex Instruction and Software Library Mapping for Embedded Software Using Symbolic Algebra," Special Issue of IEEE Transactions on CAD, pp.964-975, August 2003.
15. T. Simunic, L. Benini, P. Glynn, G. De Micheli: "Event-Driven Power Management", IEEE Transactions on CAD, pp.840-857, July 2001.
16. T. Simunic, M. Smith: "Dynamic Power Management at HP", Invited Paper in Special Issue of Design and Test Journal, 2001.
17. T. Simunic, L. Benini, G. De Micheli: "Energy-Efficient Design of Battery-Powered Embedded Systems", Special Issue of IEEE Transactions on VLSI, pp. 18-28, May 2001.
18. T. Simunic, J. Rozenblit, J. Brews: "VLSI Interconnect Design Automation Using Qualitative and Symbolic Techniques"; IEEE Transactions on Components, Packaging, and Manufacturing Technology Part B: Advanced Packaging, pp.803-812, November 1996.

CONFERENCE PAPERS

1. G. Dhiman, K. Mihic, T. Simunic Rosing, "A system for online power prediction in virtualized environments using Gaussian mixture models," to appear at DAC'10.
2. R. Ayub, S. Sharifi, T. Simunic Rosing, "GentleCool: cooling aware proactive workload scheduling in multi-machine systems," DATE'10.
3. P. Aghera, A. Coskun, D. Fang, D. Krishnaswamy, T. Simunic Rosing, "DynAHeal: Dynamic energy efficient task assignment for wireless healthcare systems," DATE'10.
4. A. Sitaraman, D. Dondi, T. Simunic Rosing, "DVFS Based Task Scheduling in a Harvesting WSN for Structural Health Monitor," DATE'10.
5. A. Coskun, D. Atienza, T. Simunic Rosing, "Energy-efficient variable-flow liquid cooling in 3D stacked architectures," DATE'10.
6. R. Ayoub, T. Simunic Rosing, "Cool and Save: Cooling Aware Dynamic Workload Scheduling in Multi-socket CPU Systems," ASPDAC'10.
7. S. Sharifi, A. Coskun, T. Simunic Rosing, "Hybrid Dynamic Energy and Thermal Management in Heterogeneous Embedded Multiprocessors," ASPDAC'10.
8. E. Regini, T. Simunic Rosing, "An Energy Efficient Wireless Communication Mechanism for Sensor Node Cluster Heads," ISSNIP'09.
9. A. Coskun, J. Ayala, D. Atienza, T. Simunic Rosing, "Modeling and Dynamic Management of 3D Multicore Systems with Liquid Cooling," *Best paper award* at VLSI-SOC 2009.
10. A. Coskun, A. Kahng, T. Simunic Rosing, "Temperature- and Cost-Aware Design of 3D Multiprocessor Architectures", DSD'09.
11. A. Coskun, R. Strong, D. Tullsen, T. Simunic Rosing, "Evaluating the Impact of Job Scheduling and Power Management on Processor Lifetime for Chip Multiprocessors," SIGMETRICS'09.
12. R. Ayoub, T. Simunic Rosing, "Predict and Act: Dynamic Thermal Management for Multicore Processors," ISLPED'09.
13. G. Dhiman, R. Ayoub, G. Marchetti, T. Simunic Rosing, "vGreen: A System for Energy Efficient Computing in Virtualized Environments," *Nominated for the best paper award* at ISLPED'09.
14. G. Dhiman, R. Ayoub, T. Simunic Rosing, "PDRM: A hybrid PRAM DRAM main memory system", DAC'09.
15. P. Aghera, D. Fang, T. Simunic Rosing, K. Patrick "Energy management in wireless healthcare systems," IPSN'09.
16. J. Bradely Steck, T. Simunic Rosing, "Adapting Performance in Energy Harvesting Wireless Sensor Networks for Structural Health Monitoring Applications," *Invited paper* at IWSHM'09.
17. J. Bradely Steck, T. Simunic Rosing, "Adapting Task Utility in Externally Triggered Energy Harvesting Wireless Sensing Systems," INSS'09.
18. J. Recas, C. Bergonzini, T. Simunic Rosing, D. Atienza, "Prediction and Management in Energy Harvested Wireless Sensor Nodes," *Invited paper* at Wireless VITAE'09.
19. J. Recas, C. Bergonzini, B. Lee, T. Simunic Rosing, "Solar energy harvesting prediction algorithm," Energy Harvesting Workshop'09.
20. A. K. Coskun, T. Simunic Rosing, J. Ayala, D. Atienza, Y. Leblebici. "Dynamic Thermal Management in 3D Multicore Architectures," DATE 2009.
21. A. Coskun, T. Simunic Rosing, K. Gross, "Proactive temperature balancing for low cost thermal management in MPSOCs," ICCAD'08.
22. G. Dhiman, K. Pusukuri, T. Simunic Rosing, "Analysis of Dynamic Voltage Scaling for System Level Energy Management," USENIX-HotPower'08.
23. E. Regini, D. Lim, T. Simunic Rosing, "Distributed scheduling for heterogeneous wireless sensor networks," IASTEAD'08.
24. A. Coskun, T. Simunic Rosing, K. Gross, "Proactive temperature management in MPSOCs," ISLPED'08.
25. A. Coskun, T. Simunic Rosing, K. Gross, "Temperature management in MPSOCs using online learning," DAC'08.
26. A. Coskun, T. Simunic Rosing, "Temperature-aware MPSOC scheduling for reducing hot spots and gradients," ASPDAC'08.

27. S. Sharifi, T. Simunic Rosing, "An analytical model for the upper bound on temperature differences on a chip," GLVLSI'08.
28. S. Sharifi, T. Simunic Rosing, "Accurate temperature sensing for efficient thermal management," ISQED'08.
29. G. Dhiman, T. Simunic Rosing, "Dynamic Voltage Scaling using Machine Learning," ISLPED'07.
30. Todd, M., Mascarenas, D., Flynn, E., Rosing, T., Lee, B., Musiani, D., Dasgupta, S., Kpotufe, S., Hsu, D., Gupta, R., Park, G., Overly, T., Nothnagel, M., Farrar, C., "A different approach to sensor networking for SHM: Remote powering and interrogation with unmanned aerial vehicles", **Keynote** at *Workshop on Structural Health Monitoring*, 2007.
31. D. Musiani, K. Lin, T. Simunic Rosing, "An Active Sensing Platform for Structural Health Monitoring Application," IPSN-SPOTS'07.
32. A. Coskun, T. Simunic Rosing, "Temperature-aware task scheduling," DATE'07.
33. D. Lim, J. Shim, T. Simunic Rosing, T. Javidi, "Scheduling data delivery in heterogeneous wireless sensor networks," ISM'06.
34. G. Dhiman, T. Simunic Rosing, "Dynamic Power Management Using Machine Learning," **Nominated for the best paper award** at ICCAD'06
35. A. Coskun, T. Simunic Rosing, "A Simulation Methodology for Reliability Analysis in Multi-Core SoCs," GVLISI'06
36. T. Simunic, K. Mihic, G. De Micheli: "Optimization of Reliability and Power Consumption in Systems on a Chip," PATMOS'05.
37. T. Simunic, W. Quadeer, G. De Micheli: "Managing heterogeneous wireless environments via Hotspot servers," MMCN'05.
38. T. Simunic, K. Mihic, G. De Micheli: "Reliability and Power Management of Integrated Systems," **Invited paper** at DSD'04
39. G. Manjunath, V. Krishnan, T. Simunic, J. Tourrilhes, A. McReynolds, D. Das, V. Srinivasmurthy, A. Srinivasan: "Smart Edge Server – going beyond a wireless access point," WMASH'04.
40. O. Celebican, T. S. Rosing, V. J. Mooney: "Energy estimation of peripheral devices in embedded systems," GLVLSI'04.
41. W. Quadeer, T. Simunic, J. Ankcorn, V. Krishnan, G. De Micheli, "Heterogeneous wireless network management", PACS'03.
42. A. Acquaviva, T. Simunic, V. Deolalikar, S. Roy: "Remote Power Control of Wireless Network Interfaces", PATMOS'03.
43. B. Delaney, N. Jayant, T. Simunic: "A WLAN Scheduling Algorithm to Reduce the Energy Consumption of a Distributed Speech Recognition Front-End", ESTIMedia'03.
44. A. Peymandoust, T. Simunic, G. De Micheli: "Complex Software Library Element Mapping with Symbolic Algebra", DAC'02.
45. T. Simunic, S. Boyd: "Managing Power Consumption in Networks on Chips", DATE'02.
46. A. Peymandoust, T. Simunic, G. De Micheli: "Low Power Embedded Software Optimization using Symbolic Algebra", pp. 1052-1057, DATE'02.
47. B. Delaney, N. Jayant, M. Hans, T. Simunic, A. Acquaviva: "Low-Power Fixed-Point Front-End Feature Extraction for Distributed Speech Recognition", ICASSP'02.
48. T. Simunic, L. Benini, A. Acquaviva, P. Glynn, G. De Micheli: "Dynamic Voltage Scaling for Portable Systems", DAC'01.
49. T. Simunic, L. Benini, P. Glynn, G. De Micheli: "Dynamic Power Management of Portable Systems", MOBICOM'00.
50. T. Simunic, L. Benini, G. De Micheli, M. Hans: "Source Code Optimization and Profiling of Energy Consumption in Embedded Systems", **Invited paper** at ISSS'00.
51. T. Simunic, H. Vikalo, P. Glynn, G. De Micheli: "Energy Efficient Design of Portable Wireless Systems", ISLPED'00.
52. T. Simunic, L. Benini, P. Glynn, G. De Micheli: "Dynamic Power Management of Laptop Hard Disk", DATE'00.

53. Y. Lu, E. Chung, T. Simunic, L. Benini, G. De Micheli: "Quantitative Comparison of Power Management Algorithms", pp.20-26, DATE'00, Selected for publication in *The Most Influential Papers of 10 Years DATE*, Edited by Lauwereins, Rudy; Madsen, Jan, 2008.
54. T. Simunic, L. Benini, G. De Micheli: "Event-driven Power Management of Portable Systems", ISSS'99.
55. T. Simunic, L. Benini, G. De Micheli: "Energy-efficient design of Battery-Powered Embedded Systems", ISLPED'99.
56. T. Simunic, L. Benini, G. De Micheli: "Cycle-Accurate Simulation of Energy Consumption in Embedded Systems", DAC'99.
57. Y. Lu, T. Simunic, G. De Micheli: "Software Controlled Power Management", CODES'99.
58. J. Rozenblit, T. Simunic: "Techniques for Intelligent VLSI Interconnect Design," DMC'94.
59. T. Simunic, J. Rozenblit: "Reduction of Signal Delay and Crosstalk in Electronic Packaging," EPEP'93.
60. T. Simunic, P. Hsu, J. Rozenblit, C. Wolff, J. Prince, A. Cangellaris: "An Integrated Framework for Modeling and Simulation of Electronic Packaging," TECHCON'93

PATENTS

1. D. Musiani, K. Lin, T. Simunic Rosing, D. Mascarenas, E. Flynn, C. Farrar, G. Park, "Wireless node for active sensing in SHM applications," invention disclosure filed 2006.
2. T. Simunic, O. Celebican: "Estimation and optimization of system I/O device power consumption," filed 2004.
3. T. Simunic, "Wireless resource management in heterogeneous networks," filed 2004.
4. T. Simunic, A. Acquaviva, "Server-driven Power Management," filed 2003.
5. T. Simunic, A. Acquaviva, L. Benini, "Application-driven method and apparatus for limiting power consumption in a processor-controlled hardware platform," USA Patent No. 7,272,730, granted 2007.
6. V. Deolalikar, T. Simunic: "Method and system for power control", USA Patent No. 7,190,980, granted 2007.
7. T. Simunic, N. Mehta, C. Crome : "Method for Test Vector Analysis"; USA Patent No. 5,923,567, granted 2005.
8. T. Simunic, N. Mehta, C. Crome : "Device for Test Vector Analysis"; USA Patent No. 6,197,605, granted 2005.

THESES (supervised & published)

1. A. K. Coskun, "Efficient Thermal Management for Multiprocessor Systems," PhD 2009.
2. E. Regini, "Resource management in heterogeneous wireless sensor networks," MS 2009.
3. J. Steck, "Energy and task management in energy harvesting wireless sensor networks for structural health monitoring," MS 2009.
4. C. Bergonzini, "Management of solar harvested energy in actuation based embedded systems," MS 2009.
5. D. Lim, "Distributed proxy-layer scheduling in heterogeneous wireless networks," MS 2007.
6. D. Musiani, "Design of an active sensing platform for wireless structural health monitoring," MS 2007.
7. T. Simunic, "Energy efficient system design and utilization," PhD 2001.
8. T. Simunic, "VLSI interconnect design automation using qualitative and quantitative techniques," MS 1993.

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ACADEMIC COMMUNITY SERVICE

- Associate Editor for IEEE Transactions on Mobile Computing 2008-pres.
- Associate Editor for IEEE Transactions on Circuits and Systems 2003-2005
- Session chair for DATE 2006-2008; ISLPED 2009
- Technical paper committee for:
 - DAC 2006- 2008, DATE 2002-2009, MMCN 2005, HotPower 2008, IPSN-SPOTS 2005, SECON 2008
- Reviewer for a number of publications ranging from IEEE Transactions on VLSI ,CAD, Mobile Computing, IEEE Computer, IEEE Micro, ACM TECS, ACM TODAES, ACM TOSN, and conferences such as DATE, DAC, ISLPED, ICCAD, IPSN
- Technical reviewer for Dutch Ministry of Economic Affairs, Estonian NSF

UNIVERSITY SERVICE

- Member of the search committee for SDSC director 2009-pres.
- Executive board member of San Diego Supercomputing Center 2008-pres.
- Engineering Wide Initiatives Committee, 2008-09
- Faculty Advisor, Women in Computing, 2005 – 09
- Calit2 System-on-a-Chip Committee, Chair, 2005 – 06
- Faculty Recruiting Committee, 2005 – 06
- Computer Engineering Program Committee, 2005 – 08
- Masters Students Admissions and Affairs Committee, 2005 – 09
- Computer Engineering Space Committee, Chair, 2005 – 09

FUNDING (as PI, Co-PI, senior contributor, student support)

- Google, \$100k, 2009-2010
- NSF-CPS, \$1.5M, 2009-2012
- Sun Microsystems Gift, \$83k, 2009
- Qualcomm Gift, \$15k, 2009
- NIH, \$2.5M, 2007-2011
- MARCO-MuSyC, \$3M, 2009-2012
- NSF SHF, \$476k, 2009-2011
- NSF GreenLight, \$2M, 2008-2012
- NSF FlashGordon, \$22M, 2011-2015
- Cisco Gift, \$80k, 2008-2009
- MARCO-GSRC Grant, \$154k, 2008-2009
- CNS Grant for thermal management, \$142k, 2008-2010
- CNS Grant for healthcare, \$116k, 2008-2010
- Xilinx gift of 20 XUP DVKs
- UC Micro Grant, \$30k, 2008-2010
- Sun Microsystems Gift, \$100k, 2008-2009
- NSF-CCF \$600k, 2007-2010
- Sun Microsystems Gift, \$60k, 2007
- CNS Grant, \$130k, 2006-2008
- NSF – HPWREN, \$3M, 2005-2009.
- LANL Structural Health Monitoring, \$7M, 2005-2009.
- UC Micro, \$30k, 2006.
- Sun Microsystems Gift, \$50k, 2005.
- CNS Grant, \$60k, 2005.
- Intel Grant, \$200k, 2005.
- UC Graduate and Travel Grant \$11k, 2005
- HP Labs - \$100k, 2003-2004

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TEACHING EXPERIENCE

Fall 05 – pres.

UCSD – Assistant professor

- taught an undergraduate class in logic circuit design (CSE 140); 95% of students said they recommend me as an instructor
- designed, got funding and set up a brand new graduate level class and lab in embedded systems (CSE237a), 90% of students said they recommend me as instructor for the class

Winter 02

STANFORD UNIVERSITY – lecturer

- taught a graduate course on Logic Synthesis of VLSI Circuits; lead a team of TAs and graders

HONORS & AWARDS

- Publication selected for inclusion in in *The Most Influential Papers of 10 Years DATE*, Edited by Lauwereins, Rudy; Madsen, Jan, 2008.
- Nominated as one of MIT's top 100 researchers in 2002
- Lowell's Award for the Best Student in Science at the Northern Arizona University 1992
- NSF Design and Manufacturing Grantee and SRC Research Assistantship 1993
- NASA Undergraduate Research Fellowship 1991

INVITED TALKS

1. Microsoft Cloud Computing Futures, "Achieving Energy Efficient Computing for Future Large Scale Applications," 2010.
2. NSF, DC, "Population-Area Wireless Healthcare Networks," NSF Workshop on Future Directions in Sensing Systems, 2009.
3. UIUC, IL, "Energy efficient computing," 2009.
4. UIC, IL, "Energy efficient computing," 2009.
5. UC Irvine, CA, "Energy efficient computing," 2009.
6. Princeton University, NJ, "Energy efficient computing," 2009.
7. Penn State University, PA, "Energy efficient computing," 2009.
8. CMU, PA, "Energy efficient computing," 2009.
9. La Jolla Research & Innovation Summit, Venture Capital panel: "Energy Efficient Systems," 2009.
10. Ericson, "Energy efficient computing," 2009.
11. IBM Research, Austin, TX, "Energy efficient computing," 2009.
12. IBM Research, TJ Watson, NY, "Energy efficient computing," 2009.
13. Lockheed Martin, San Diego, "Energy efficient computing," 2009.
14. InterDigital, "Energy efficient computing," 2009.
15. SK Telecom, "Heterogeneous wireless sensor networks," 2009.
16. On Ramp Wireless, "Heterogeneous wireless sensor networks," 2009.
17. Northrop Grumman, San Diego, "Energy efficient computing," 2009.
18. Panasonic, "Energy efficient computing," 2009.
19. Qualcomm, San Diego, "Power and thermal management in 2D and 3D multicore processors," 2009.
20. Qualcomm, VC group, "Heterogeneous wireless sensor networks," 2009.
21. Qualcomm, San Diego, "Wireless healthcare," 2009.
22. Google, Mountain View, "Energy efficient computing," 2009.
23. Google, Mountain View, "Power management in operating systems and energy efficient software," 2009.
24. Sun Microsystems, San Diego, "Energy efficient computing," 2009.
25. Sun Microsystems, Menlo Park, "Power and thermal management in multicore processors," 2009.
26. Cisco, "Energy efficient computing," 2009.
27. Cisco, "Energy management in virtualized systems," 2009.
28. Cisco, "Wireless healthcare," 2009.
29. Yahoo, "Energy efficient computing," 2009.
30. TI, "Energy efficient computing," 2009.

31. Intel, Santa Clara, "Power management in multicore processors," 2009.
32. Intel, Hillsborough, "Energy management using virtualization," 2009.
33. FER, Zagreb, Croatia, "Energy efficient computing," 2009.
34. USC, CA, "Energy efficient computing," 2009.
35. UCLA, CA, "Energy efficient computing," 2009.
36. SPAWAR, San Diego, "Energy efficient computing," 2009.
37. Workshop on mapping applications to MPSoCs, "Energy and thermal management in MPSoCs," 2009.
38. UC Berkeley, "Energy management in computing systems," 2008.
39. EPFL, Switzerland, "Resource management in heterogeneous wireless sensor networks," 2008.
40. EPFL, Switzerland, "Thermally-aware OS scheduling for MPSoCs," 2008.
41. Intel – Hillsborough, OR, "Dynamic power management in wireless systems," 2008.
42. Microsoft Research – Redmond, WA, "Resource Management of Heterogeneous Wireless Embedded Systems", 2006.
43. Intel – Folsom, CA, "Resource Management of Heterogeneous Wireless Embedded Systems", 2006.
44. Sun Microsystems – Mountain View, CA, "Managing SOC power and reliability with in-situ telemetry", 2006.
45. HP Labs – Palo Alto, CA, "Resource Management of Heterogeneous Wireless Embedded Systems", 2006.
46. ARM - Irvine, CA, "Modeling power and reliability of SOCs," 2006.
47. Tensilica – Santa Clara, CA, "Modeling power and reliability of SOCs," 2006.
48. Mindspeed – Irvine, CA, "Modeling power and reliability of SOCs," 2006.
49. Sun Microsystems – Mountain View, CA, "Resource Management of Heterogeneous Wireless Embedded Systems", 2006.
50. Ericsson – San Diego, CA: "Heterogeneous sensor networks," 2006.
51. Intel – Santa Clara, CA: "Reliable and low power SOC design", 2005.
52. ST Micro – San Diego, CA: "Reliable and low power SOC design," 2005.
53. Intel – Portland, CA: "Resource Management of Heterogeneous Wireless Embedded Systems", 2005.
54. Freescale – Phoenix, AZ, "Reliable and low power SOC design", 2005.
55. Qualcomm – San Diego, CA, "Analysis of SOC power management," 2005.
56. Sun Microsystems – San Diego, CA: "Reliable and low power SOC design", 2005.
57. DATE'05, Munich, Germany, Special Session Invited paper: "Power management in wireless environments," 2005.
58. EPFL – Lausanne, Switzerland, "Reliable and low power SOC design", 2005.
59. IMEC – Belgium, "Resource Management of Heterogeneous Wireless Embedded Systems", 2005.
60. HP Techcon – Orlando, FL, "Managing resources of HotSpot servers," 2004.
61. University of Washington – Seattle, WA, "Resource management in embedded systems," 2003.
62. USC – Los Angeles, CA: "Resource management in embedded systems," 2003.
63. UC Berkeley – Berkeley, CA, "Energy efficient system design and utilization," 2002.
64. MIT – Cambridge, MA, "Energy efficient system design and utilization," 2002.
65. Stanford University – Stanford, CA, "Resource management in embedded systems," 2002.
66. University of Washington - Seattle, WA, "Energy efficient system design and utilization," 2001.
67. Gatech – Atlanta, GA, "Energy efficient system design and utilization," 2001.
68. UCI – Irvine, CA, "System-level power management," 2001.
69. IBM TJ Watson - Yorktown Heights, NY, "Energy efficient system design and utilization," 2001.
70. Lucent Labs - Murray Hill, NJ, "Energy efficient system design and utilization," 2001.
71. HP Labs – Palo Alto, CA, "Energy efficient system design and utilization," 2001.