

Daniel Mossé
Department of Computer Science
University of Pittsburgh
Pittsburgh, PA 15260
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• **EDUCATION**

- Ph.D. in Computer Science** *Dec 1993*
University of Maryland, College Park
Dissertation: “A Framework for the Development and Deployment of
Fault Tolerant Applications in Real-Time Systems”
- M.S. in Computer Science** *May 1990*
University of Maryland, College Park
Thesis: “Serial Pattern Matching”
- B.S. in Mathematics** *Dec 1985*
University of Brasília, Brazil

• **RESEARCH INTERESTS**

Distributed Real-Time Systems

- Real Time, Fault Tolerance, Distributed Resource Allocation, and Scheduling
- Real-Time Communication and Networks
- Power Management, Energy Management, Embedded Systems

• **APPOINTMENTS**

- Professor**, Department of Computer Science, University of Pittsburgh *2004-present*
- Visiting Associate Professor**, Department of Computer Science,
Cornell University *2000-2001*
- Associate Professor**, Department of Computer Science,
University of Pittsburgh *1998-2004*
- Assistant Professor**, Department of Computer Science,
University of Pittsburgh *1993-1998*
- Secondary Faculty Appointment**, Computer Engineering Program,
University of Pittsburgh *1996-present*
- Invited Faculty Member**, Semester at Sea Program,
Institute for Shipboard Education *Spring 2000*
- Related Faculty**, Center for Latin-American Studies, University of Pittsburgh *1996-present*
- Visiting Assistant Professor**, Department of Computer Science,
Cornell University *Summer 1995*
- Instructor**, Department of Computer Science, University of Pittsburgh *1992-1993*
- Research Assistant**, Department of Computer Science, University of Maryland *1987-1992*
- Teaching Assistant**, University College/IBM, University of Maryland *1990*

Teaching Assistant, Department of Computer Science, University of Maryland *1986-1987*
Intern and Programmer, Computer Science Center, University of Brasília *1982-1985*
English Teacher, CCAA Language Institute, Brasília, Brazil *1979-1981*

• **RESEARCH GRANTS**

Equipment grant from Sun Microsystems for undergraduate operating system and multicore research (*\$25,000*) *2009*

NSF, CCF Division *2008-2010* (Bruce Childers, PI; Rami Melhem, co-PI)
 “CPA-CSA:Tera-PCM: A Low Power Terabyte Main Memory using Phase Change Memory” (*\$300,000*)

NSF, CCF Division *2008-2009*
 An International Supplement for NSF grant CT-ISG (see below) (*\$10,000*)

Univ of Pittsburgh, Innovation in Education Awards *2007-2008*
 For development of new programming course for non-majors (*\$16,000*)

NSF, CNS Division *2006-2007*
 For travel support for RTSS 2006 (*\$10,395*)

SGER: Sensor Based Infrastructure for Early Tsunami Detection,
 (Louise Comfort and Taieb Znati, Co-PIs) *2005-2006*
 For examining the issues in early tsunami detection and response systems (*\$199,214*)

CT-ISG: Fault-Tolerant and Secure Infrastructure for Time-Critical Embedded Systems,
 (Rami Melhem and Taieb Znati, Co-PIs) *2005-2008*
 For studying secure, reward-based, fault-tolerant routing and data forwarding (*\$250,006*)

DARPA, subcontract from Raytheon (Bruce Childers, co-PIs) *2004-2006*
 For studying memory structures for power management (*\$150,000*)

NSF ITR Division, (Rami Melhem, Louise Comfort–GSPIA, co-PIs) *2003-2008*
 For research on Secure Critical Information Technology Infrastructure for Emergency Management (*\$2,800,000*)

DARPA/BAE, (Rami Melhem, PI) *2002-2004*
 For research on power management of space applications (*\$430,000*)

IBM Shared University Research (Rami Melhem, PI) *2003-2005*
 Equipment grant for power management in highly available systems (*\$70,000*)

NSF Networking Division (Rami Melhem, co-PI) *2002-2005*
 For studying power-autonomous wireless networks (*\$200,000*)

NSF Networking Division (Rami Melhem, co-PI) *2001-2004*
 For studying distributed denial-of-service issues (*\$300,000*)

NSF Research Experience for Undergraduates Award (several awards) *1994-present*
 To support undergraduates in research projects on network security (*\$52,365*)

NSF ITR Division, senior investigator; *2001-2006*
 with Vanderbilt, Illinois, and Syracuse Universities
 For development of real-time fault-tolerant software for the BTeV accelerator at Fermi National Labs (*\$4,998,000*), *Pitt’s share: \$590,000*)

- NSF Computer Communication Research** *2001-2002*
 For travel support for RTAS'01 (*\$12,000*)
- DARPA** (Rami Melhem, PI) *2000-2004*
 For power-aware scheduling in real-time operating systems (*\$1,600,000*)
- NSF Division of Undergraduate Education** *1996-1999*
 For development of course materials for teaching real-time systems (*\$129,884*)
- University of Pittsburgh Research Fund** *1994-1995*
 To study resource reclaiming schemes for real-time systems (*\$9,000*)
- NSF Research Initiation Award** *1993-1996*
 For study of fault tolerance schemes in real-time systems (*\$99,999*)
- Digital Equipment Corporation** *1992*
 Equipment grant for development of real-time operating systems (*\$30,000*)
- **TEACHING AWARDS/GRANTS**
 - Provost's Innovation in Education Grant/Award** *2007*
 One of 11 recipients at the University of Pittsburgh,
 for redesigning the Introductory Programming course for non-majors
 - Tina and David Bellet Teaching Excellence Award** *2006*
 One of two among over 500 faculty members in the School of Arts and Sciences
 - Teaching Excellence Award** (undergraduate elective) *1994-1998,2003,2005*
 Computer Science Department, University of Pittsburgh
 - Teaching Excellence Award** (graduate core) *1994,1995,1996,2001,2002*
 Computer Science Department, University of Pittsburgh
 - Nominee, Chancellor's Distinguished Teaching Award** *1996*
 (1 of 20 nominees throughout the University of Pittsburgh)
 - Teaching Excellence Award** (for teaching assistants) *1987*
 One per year in the Computer Science Department, University of Maryland, College
 Park
 - Teaching Excellence Award** *1980*
 CCAA Language Institute Brasilia, DF, Brazil
 - **SCHOLARLY AWARDS**
 - IPAM/UCLA Large Scale Network Workshops** *2002*
 Support for attending 2 week-long workshops at IPAM/UCLA
 - GE Information Systems Scholar** *1989*
 One award per year for graduate students
 - **PUBLICATIONS**
 - Journal Papers**
 1. L. Comfort, D. Mossé, and T. Znati, "Managing Risk in Real Time: Integrating Information Technology into Disaster Risk Reduction and Response," in Commonwealth, a Journal of Political Science, Special Policy Issue on Emergency Management in Pennsylvania. Volume 15, Number 1, pages 27-46, May 2009

2. D. Zhu, R. Melhem and D. Mossé “Energy Efficient Redundant Configurations for Real-Time Parallel Reliable Servers,” *Journal of Real-Time Systems*, Volume 41, Issue 3, pages 195-221, 2009
3. V. Ramasubramanian and D. Mossé, “BRA: a Bidirectional Routing Abstraction for Asymmetric Mobile Ad Hoc Networks,” *ACM/IEEE Transactions on Networking*, Volume 16, Number 1, pages 116-129, 2008
4. R. Xu, D. Mossé, and R. Melhem “Minimizing Expected Energy Consumption in Real-Time Systems through Dynamic Voltage Scaling”, in *ACM Transactions on Computers*, vol. 25, no. 4, pp Dec 2007
5. N. AbouGhazaleh, D. Mossé, B. Childers and R. Melhem, “Near-memory Caching for Improved Energy Consumption,” in *IEEE Transactions on Computers*, vol 56, number 11, pp 1441-1455 Nov. 2007
6. S. Khattab, R. Melhem, D. Mossé, and T. Znati, “Honeypot Back-propagation for Mitigating Spoofing Distributed Denial-of-Service Attacks,” *Journal Parallel Distributed Computing*, v 66, number 9, pages 1152-1164, September 2006, Special Issue on Security in Grid and Distributed Systems
7. N. AbouGhazaleh, D. Mossé, B. Childers, R. Melhem, “Collaborative Operating System and Compiler Power Management for Real-Time Applications,” in *ACM Trans. on Embedded Computing Systems*, Volume 5, Number 1, February 2006, pages 82-115
8. N. AbouGhazaleh, B. Childers, D. Mossé, and R. Melhem, “Power Management in External Memory using Power-Aware Cached-DRAM,” in *Int’l. Journal on Embedded Systems*, Special Issue on Power-Aware Computing Systems, vol 3, numbers 1-2, pp 65-72, 2007
9. S. Gabriel, R. Melhem, and D. Mossé, “A Unified Interference/Collision Model for Optimal MAC Transmission Power in Adhoc Networks,” in *International Journal of Wireless and Mobile Computing*, Volume 1, Number 3/4, pp 179-190, 2006
10. D. Mossé *et. al.*, “RTES Demo System 2004,” *ACM SIGBED Review*, Volume 2, Issue 3, July 2005
11. C. Sangpachatanaruk, S. M. Khattab, T. Znati, R. Melhem, and D. Mossé, “Design and Analysis of a Replicated Elusive Server Scheme for Mitigating Denial of Service Attacks,” *Journal of Systems and Software*, Elsevier, Vol 73(1), p15-29, September 2004
12. C. Rusu, R. Melhem, and D. Mossé, “Multi-version Scheduling in Rechargeable Energy-aware Real-time Systems Energy Constraints,” *Journal of Embedded Computing*, Vol. 1, Issue 2, 2004
13. T. Okumura and D. Mossé, “Virtualizing Network I/O on End-Host Operating System – Operating System Support for Network Control and Resource Protection,” *IEEE Transactions on Computers*, Vol. 53, No. 10, pp 1303-1316, Oct 2004
14. D. Zhu, D. Mossé and R. Melhem, “Power Aware Scheduling for AND/OR Graphs in Real-Time Systems,” *IEEE Transactions on Parallel and Distributed Systems*, Vol. 15, No. 9, Sep 2004
15. H. Aydin, R. Melhem, D. Mossé, and P. Mejía-Alvarez, “Power-Aware Scheduling for Periodic Real-Time Tasks,” *IEEE Transactions on Computers*, Vol. 53, No. 5, pp 584–600, May 2004

16. R. Melhem, D. Mossé and E. Elnozahy, "The Interplay of Power Management and Fault Recovery in Real-Time Systems," *IEEE Transactions on Computers*, Vol. 53, No. 2, pp 217–23, Feb 2004
17. C. Rusu, R. Melhem, and D. Mossé, "Maximizing Rewards for Real-Time Applications with Energy Constraints," *ACM Transactions on Embedded Computing Systems*, Vol. 2, No. 4, pp 1-23, Nov 2003
18. C. Rusu, R. Melhem, and D. Mossé, "Maximizing the System Value while Satisfying Time and Energy Constraints," *IBM Journal of Research and Development*, Vol. 47, No. 5/6, 2003
19. P. Mejía-Alvarez, E. Levner and D. Mossé, "Power-Optimized Scheduling Server for Real-Time Tasks," *ACM Transactions on Embedded Computing Systems*, special issue on Dynamically Adaptable Embedded Systems, Vol. 3, No. 2, May 2004
20. P. Mejía-Alvarez, R. Melhem, D. Mossé, and H. Aydin, "An Incremental Server for Scheduling Overloaded Real-Time Systems," *IEEE Transactions on Computers*, Vol. 52, No. 10, Oct 2003
21. D. Mossé, R. Melhem, and S. Ghosh, "A Non-Preemptive Real-Time Scheduler with Recovery from Transient Faults and Its Implementation," *IEEE Transactions on Software Engineering*, Vol. 29, No. 8, pp 752–767, Aug 2003
22. S. Lauzac, R. Melhem, and D. Mossé, "An Improved Rate-Monotonic Admission Control and its Applications," *IEEE Transactions on Computers*, Vol. 52, No. 3, pp 337-350, Mar 2003
23. H. Aydin, R. Melhem, D. Mossé, and P. Mejia-Alvarez "Optimal Reward-Based Scheduling for Periodic Real-Time Tasks," *IEEE Transactions on Computers*, Vol. 50, No. 2, pp. 111-130, Feb 2001
24. Y. Ronen, D. Mossé, and M. Pollack, "Using Value-Density Algorithms to Handle Transient Overloads in Deliberation Scheduling," *to appear in IEEE Expert, Special Issue on Real-Time Intelligent Systems*
25. F. Liberato, R. Melhem, and D. Mossé, "Tolerance to Multiple Faults for Aperiodic Tasks in Hard Real-Time Systems," *IEEE Transactions on Computers*, Vol. 49, No. 9, pp. 906-914, Sep 2000
26. B. Field, T. Znati, and D. Mossé, "V-Net: A Versatile Network Architecture for Flexible Delay Guarantees in Real-Time Networks," *IEEE Transactions on Computers*, Vol. 49, No. 8, pp. 841-858, Aug 2000
27. R. Friedman and D. Mossé, "Load Balancing Schemes for High-Throughput Distributed Fault-Tolerant Servers," *Journal of Parallel and Distributed Computing*, Vol. 59, No. 3, pp. 475-488, Dec 1999
28. S. Komandur, J. Crowcroft, and D. Mossé, "Performance Comparison of CRAM, SPAM, and SEAM," *Telecommunication Systems*, special issue on ATM (Asynchronous Transfer Mode) Networks, Vol. 11 No. 3, pp 267-274, Baltzer Science Publishers, 1999.
29. A. Egan, D. Kutz, D. Mikulin, R. Melhem, and D. Mossé, "Fault-Tolerant RT-Mach (FT-RT-Mach) and an Application to Real-Time Train Control," *Software Practice and Experience*, Vol. 29 No. 4, pp 379-395, Wiley Publishers, April 1999
30. S. Ghosh, R. Melhem, D. Mossé, and J. Sensarma, "Fault-Tolerant Rate-Monotonic

- Scheduling,” *Journal of Real-Time Systems*, Vol. 15, No. 2, pp 149-181, September 1998
31. J. Fayman, D. Mossé, and E. Rivlin, “FT-AVS: A Fault-Tolerant Architecture for Real-Time Active Vision,” *Journal of Real-Time Imaging*, v 4, No. 2, pp 143-157, Apr 1998
 32. Y-J. Chen, D. Mossé, and S-K. Chang, “A Framework for Modeling Dependable Real-Time Distributed Systems,” *International Journal of Systems Science; Special Issue on Distributed Systems*, Vol. 28, No. 11, November 1997
 33. S. Ghosh, R. Melhem, and D. Mossé, “Fault Tolerance through Scheduling of Aperiodic Tasks in Hard Real-Time Multiprocessor Systems,” *IEEE Transactions on Parallel and Distributed Systems*, Vol. 8, No. 3, pp 272-284, Mar 1997
 34. D. Mossé, “Resource Reservations in Networked Multimedia Systems,” *ACM Computing Surveys*, Vol. 27, No. 4, pp 610-612, Dec 1995
 35. D. Mossé, “Serial Pattern Matching Methods,” *RITA – Revista de Informática Técnica e Aplicada*, Brazil, Vol. 1, No. 2, pp 9-35, Mar 1990

submitted journal papers

Book Chapters

1. D. Zhu, B. Childers, D. Mossé, and R. Melhem, “Power Aware Mapping of Real-Time Tasks to Multiprocessors,” in *The Handbook of Parallel Computing: Models, Algorithms, and Applications*, Edited by Sanguthevar Rajasekaran et al., CRC Press, 2006
2. H. Aydin, R. Melhem, D. Mossé, “Periodic Reward-Based Scheduling and Its Application to Power-Aware Real-Time Scheduling,” in *Handbook of Scheduling: Algorithms, Models, and Performance Analysis*, 2004 (J. Leung, editor)
3. N. AbouGhazaleh, D. Mossé, B. Childers and R. Melhem, “Toward the Placement of Power Management Points in Real-Time Applications,” in *Compilers and Operating Systems for Low Power*, Kluwer Academic Publishers, 2003
4. R. Melhem, N. AbouGhazaleh, H. Aydin and D. Mossé, “Power Management Points in Power-Aware Real-Time Systems,” in *Power Aware Computing*, ed. by R. Graybill and R. Melhem, Plenum/Kluwer Publishers, 2002.
5. Ó. Gudmundsson, D. Mossé, K-T. Ko, A. K. Agrawala, and S. K. Tripathi, “MARUTI: A Platform for Hard Real-Time Application,” *Mission Critical Operating Systems*, IOS Press, 1991.

Refereed Conference Papers

1. L. Bertini, J. Leite, and D. Mossé, “Generalized Tardiness Quantile Metric: Distributed DVS for Soft Real-Time Web Clusters,” *Proceedings of ECRTS 2009 (European Conference of Real-Time Systems)*, Dublin, Ireland, July 2009.
2. S. Gabriel, D. Mossé, R. Cleric, “TDMA-ASAP: Sensor Network TDMA Scheduling with Adaptive Slot-stealing And Parallelism,” *The 29th International Conference on Distributed Computing Systems (ICDCS 2009)*, Montreal, Canada, June 2009

3. T. Okumura, B. R. Childers, and D. Mossé, "Network I/O Extensibility without Administrator Privilege," *International Conference on Autonomic and Autonomous Systems (ICAS)*, Valencia, Spain, April 2009
4. Vinicius Petrucci, Orlando Loques and Daniel Mossé, "A Framework for Dynamic Adaptation of Power-aware Server Clusters," in *Proceedings of SAC 2009, ACM Symposium of Applied Computing*, Honolulu, Hawaii, March 2009
5. Sameh Gobriel, Sherif Khattab, Rami Melhem and Daniel Mossé, "GroupBeat: Wireless Networks Made Reliable," (short paper) in *IEEE International Conference on Mobile Ad-hoc and Sensor Systems 2008 (MASS'08)*, Atlanta Oct 2008
6. Sherif Khattab, Daniel Mossé and Rami Melhem, "Jamming Mitigation in Multi-Radio Wireless Networks: Reactive or Proactive?," in *Proceedings of SecureComm 2008*, Istanbul, Turkey, Sept 2008
7. Sherif Khattab, Daniel Mossé and Rami Melhem "Modeling of the Channel-hopping Anti-Jamming Defense in Multi-Radio Wireless Networks", in *Proceedings of Mobiquitous*, Dublin, Ireland, July 2008
8. Sherif Khattab, Sameh Gobriel, Rami Melhem, and Daniel Mossé, "Live Baiting for Service-level DoS Attackers", in *Proceedings of INFOCOM'08*, Phoenix, AZ, April 2008
9. T. Okumura, B. R. Childers, and D. Mossé, "Running a Java VM Inside an Operating System Kernel: a Networking case study," *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE 2008)*, Seattle, WA, March 2008
10. N. AbouGhazaleh, B. Childers, R. Melhem and D. Mossé "Integrated CPU and cache power management," *2008 International Conference on High Performance Embedded Architectures & Compilers (HiPEAC 2008)*, Goteborg, Sweden, Jan 2008.
11. R. Xu, R. Melhem, and D. Mossé, "Energy-Aware Scheduling for Streaming Applications on Chip Multiprocessors," *Proceedings of RTSS'07 (Real-Time Systems Symposium)*, Tucson, AZ, Dec 2007
12. R. Xu, R. Melhem, and D. Mossé, "A Unified Practical Approach to Stochastic DVS Scheduling," *ACM Int'l Conf on Embedded Software (EMSoft 2007)*, Austria, Sep 2007
13. L. Bertini, J. Leite, and D. Mossé, "Statistical QoS Guarantee and Energy-efficiency in Web Server Clusters," *Proceedings of ECRTS 2007 (European Conference of Real-Time Systems)*, Pisa, Italy, July 2007.
14. A. Ferreira, D. Mossé, and J. Oh, "Thermal Faults Modeling using a RC model with an Application to Web Farms," *Proceedings of ECRTS 2007 (European Conference of Real-Time Systems)*, Pisa, Italy, July 2007.
15. N. AbouGhazaleh, A. Ferreira, C. Rusu, R. Xu, F. Liberato, B. Childers, R. Melhem and D. Mossé "Integrated CPU and L2 cache Voltage Scaling using Machine Learning," *ACM Language, Compilers, and Tools for Embedded Systems (LCTES 2007)*, San Diego, CA, June 2007
16. A. Berfield, P. K. Chrysanthis and D. Mossé, "LSynD: Localized Synopsis Diffusion," *10th IEEE Int'l Symposium on Object and Component-Oriented Real-Time Computing (ISORC 2007)*, Santorini, Greece, June 2007

17. S. Khattab, J. Brustoloni, D. Mossé, “Integrated Scheduling of Application- and Network-Layer Tasks in Delay-Tolerant MANETs,” *IEEE Global Telecommunications Conference (GLOBECOM 2006)*, San Francisco, California, November 2006
18. S. Gabriel, D. Mossé, R. Melhem, S. Khattab, J. Brustoloni, “RideSharing: Fault Tolerant Aggregation in Sensor Networks Using Corrective Actions,” *The 3rd Annual IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks (SECON)*, Reston, Virginia, September 2006
19. S. Gabriel, D. Mossé, R. Melhem, “Mitigating the Flooding Waves Problem in Energy-Efficient Routing for MANETs,” *The 26th International Conference on Distributed Computing Systems (ICDCS 2006)*, Lisboa, Portugal, July 2006
20. D. Mossé, L. Comfort, A. Amer, J. Brustoloni, P. Chrysanthis, M. Hauskrecht, A. Labrinidis, R. Melhem, and K. Pruhs, “Secure-CITI Critical Information-Technology Infrastructure,” *The Seventh Annual Conference on Digital Government Research (DG.O 2006)*, San Diego, CA, May 2006
21. H. Qu, A. Labrinidis, and D. Mossé, “UNIT: User-centric Transaction Management in Web-Database Systems,” *The 22nd IEEE International Conference on Data Engineering (ICDE 2006)*, Atlanta, GA, Apr 2006
22. C. Rusu, A. Ferreira, C. Scordino, A. Watson, R. Melhem, and D. Mossé, “Energy-Efficient Real-Time Heterogeneous Server Clusters”, *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, San Jose, CA, April 2006
23. M.L. Soffa, G. Kapfhammer, and D. Mossé, “Testing in Resource Constrained Execution Environments,” *2005 IEEE/ACM International Conference on Automated Software Engineering (ASE 2005)*, Long Beach, CA, Nov 2005 [acceptance ratio: 89 out of 456]
24. T. Okumura, A. Amer and D. Mossé, “Prioritizing Write Acknowledgment inside Network Fileservers (poster),” *IEEE Global Telecommunications Conference (GLOBECOM 2005)*, St. Louis, MI, Nov 2005
25. N. AbouGhazaleh, D. Mossé, B. Childers and R. Melhem, “Near-memory Caching for Improved Energy Consumption,” *IEEE Int’l. Conf. on Computer Design (ICCD’05)*, San Jose, California , October 2005
26. H. Ling, D. Mossé and T. Znati, “Coverage-based Probabilistic Forwarding in Ad Hoc Routing,” *Int’l Conference on Computer Communication and Networks (ICCCN 2005)*, San Diego, CA, Oct 2005
27. R. Xu, D. Zhu, C. Rusu, R. Melhem, and D. Mossé, “Energy-Efficient Policies for Embedded Clusters,” *ACM Language, Compilers, and Tools for Embedded Systems (LCTES 2005)*, Chicago, IL, June 2005
28. D. Zhu, R. Melhem, and D. Mossé, “Energy-Efficient Configuration for QoS in Reliable Parallel Servers,” *European Dependable Computing Conference (EDCC’05)*, Budapest, Hungary, Apr 2005
29. S. Gabriel, R. Melhem, and D. Mossé, “BLAM: An Energy-Aware MAC Layer Enhancement for Wireless Adhoc Networks,” *IEEE Wireless Communications and Networking Conference (WCNC 2005)*, New Orleans, March 2005.
30. T. Okumura and D. Mossé, “The Netnice Packet Filter Bridging the Structural Mismatches in End-host Network Control and Monitoring,” *INFOCOM 2005*, Miami, March 2005.

31. S. Gobriel, R. Melhem, and D. Mossé, "Modeling an Energy-Efficient MAC Layer Protocol," *IEEE ICENCO 2004*, Egypt, Dec 2004.
32. D. Zhu, R. Melhem, D. Mossé, and M. Elnozahy, "The Effects of Energy Management on Reliability of Real-Time Embedded Systems," *IEEE Int'l Conf on Computer Aided Design (ICCAD)*, San Jose, CA, 2004
33. R. Xu, C. Xi, R. Melhem, and D. Mossé, "Practical PACE for Embedded Systems," *ACM Int'l Conf on Embedded Software (EMSoft 2004)*, Pisa, Italy, Sep 2004
34. C. Rusu, R. Xu, R. Melhem, and D. Mossé, "Energy-Efficient Policies for Request-Driven Soft Real-Time Systems," *European Conference of Real-Time Systems (ECRTS 2004)*, Catania, Italy, Jul 2004
35. D. Zhu, R. Melhem, D. Mossé, and M. Elnozahy, "Analysis of an Energy Efficient Optimistic TMR Scheme," *Int'l Conf on Parallel and Distributed Systems (ICPADS)*, Jul 2004
36. S. M. Khattab, C. Sangpachatanaruk, R. Melhem, D. Mossé, and T. Znati, "Roaming Honeypots for Mitigating Service-level Denial-of-Service Attacks," *ICDCS-International Conference on Distributed Computing Systems*, Mar 2004
37. S. Gobriel, R. Melhem, and D. Mossé, "Unified Interference/Collision Analysis for Power-Aware Adhoc Networks," *INFOCOM 2004*, Hong Kong, March 2004.
38. D. Zhu, R. Melhem, and D. Mossé, "Multiple-Resource Periodic Scheduling Problem: How Much Fairness is Necessary?," *Proceedings of RTSS'03 (Real-Time Systems Symposium)*, Cancun, Mexico, Dec 2003
39. S. M. Khattab, C. Sangpachatanaruk, R. Melhem, D. Mossé and T. Znati "Proactive Server Roaming for Mitigating Denial-of-Service Attacks," *International Conference on Information Technology: Research and Education*, August 2003
40. N. AbouGhazaleh, D. Mossé, B. Childers, R. Melhem, and M. Craven, "Energy Management for Real-Time Embedded Applications with Compiler Support," *ACM Language, Compilers and Tools for Embedded Systems (LCTES 2003)*, San Diego, June 2003
41. N. AbouGhazaleh, D. Mossé, B. Childers, R. Melhem, and M. Craven, "Collaborative Operating System and Compiler Power Management for Real-Time Applications," *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'03)*, June 2003
42. C. Rusu, R. Melhem, and D. Mossé, "Multi-version Scheduling in Rechargeable Energy-aware Real-time Systems Energy Constraints," *Proceedings of ECRTS 2003 (European Conference of Real-Time Systems)*, Porto, Portugal, July 2003. Appeared also in *Journal of Embedded Computing*, 2004
43. J. Oh, S. Tamhankar, and D. Mossé, "Design of Very Lightweight Agents for Reactive Embedded Systems," *IEEE Conference on the Engineering of Computer Based Systems (ECBS)*, April 2003, Huntsville, AL
44. T. Okumura, D. Mossé, Masaki Minami and Osamu Nakamura, "Network QoS Management Framework for Server Clusters," *IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid 2003)*, Tokyo, Japan, May 2003
45. C. Sangpachatanaruk, S. M. Khattab, T. Znati, D. Mossé and R. Melhem, "A Simulation Study of the Proactive Server Roaming for Mitigating Denial of Service Attacks," *Annual Simulation Symposium*, Orlando, FL, Apr 2003

46. R. Mishra, N. Rastogi, D. Zhu, D. Mossé, and R. Melhem “Energy Aware Scheduling for Distributed Real-Time Systems,” *IPDPS’02 (IEEE International Parallel and Distributed Processing Symposium)*, Nice, France, Apr 2003
47. E. Elnozahy, R. Melhem, and D. Mossé, “Energy-Efficient Duplex and TMR Real-Time Systems,” *Proceedings of RTSS’02 (Real-Time Systems Symposium)*, Austin, TX, Dec 2002
48. C. Rusu, R. Melhem, and D. Mossé, “Maximizing the System Value while Satisfying Time and Energy Constraints,” *Proceedings of RTSS’02 (Real-Time Systems Symposium)*, Austin, TX, Dec 2002
49. P. Mejia-Alvarez, E. Levner, D. Mossé, “Power-Optimized Scheduling Server for Real-Time Tasks,” *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS’02)*, 2002
50. D. Zhu, N. AbouGhazaleh, D. Mossé and R. Melhem, “Power Aware Scheduling for AND/OR Graphs in Multi-Processor Real-Time Systems,” *2002 International Conference on Parallel Processing (ICPP)*, August 2002.
51. T. Okumura, D. Mossé, Masaki Minami and Osamu Nakamura, “Operating System Support for Network Control: a virtual network interface approach for end-host OSs,” *International Workshop on Quality of Service (IWQoS 2002)*, May 2002.
52. V. Ramasubramanian, R. Chandra and D. Mossé, “Providing a Bidirectional Abstraction for Unidirectional AdHoc Networks,” *INFOCOM 2002*, New York, June 2002.
53. H. Aydin, R. Melhem, D. Mossé, and P. Mejia Alvarez, “Dynamic and Aggressive Scheduling Techniques for Power-Aware Real-Time Systems,” *Proceedings of RTSS’01 (Real-Time Systems Symposium)*, London, England, Dec 2001
54. E. Gottschalk et al, “The BTeV DAQ and Trigger System – Some Throughput, Usability and Fault Tolerance Aspects,” *Computing in High Energy Physics Conference*, Beijing, China, 2001.
55. H. Aydin, R. Melhem, D. Mossé, and P. Mejia Alvarez, “Determining Optimal Processor Speeds for Periodic Real-Time Tasks with Different Power Characteristics,” *European Conference of Real-Time Systems*, June 2001
56. L. Dong, Daniel Mossé, and Rami Melhem, “Effect of Scheduling Jitter on End-to-End Delay in TDMA Protocols,” *Real-Time Computing Systems and Applications (RTCISA)*, Dec 2000
57. P. Mejia Alvarez, Hakan Aydın, Daniel Mossé, and Rami Melhem “Scheduling Optional Computations in Fault-Tolerant Real-Time Systems,” *Real-Time Computing Systems and Applications (RTCISA)*, Dec 2000
58. Hakan Aydın, Daniel Mossé, and Rami Melhem, “Optimal Scheduling of Imprecise Computation Tasks in the Presence of Multiple Faults,” *Real-Time Computing Systems and Applications (RTCISA)*, Dec 2000
59. P. Mejia Alvarez, R. Melhem, and D. Mossé, “An Incremental Approach to Scheduling during Overloads in Real-Time Systems,” *Real-Time Systems Symposium*, Dec 2000
60. T. Okumura, M. Moir, and D. Mossé, “**netnice**: nice is not only for CPUs: A Simple Subnetwork Bandwidth Management Scheme,” *International Conference on Computer Communications and Networks, (ICCCN’00)*, Oct 2000

61. H. Aydın, R. Melhem, and D. Mossé, "Tolerating Faults While Maximizing Reward," *European Conference of Real-Time Systems*, June 2000
62. L. Dong, R. Melhem, and D. Mossé, "Scheduling Algorithms for Dynamic Message Streams with Distance Constraints in TDMA protocol," *European Conference of Real-Time Systems*, June 2000
63. H. Aydın, P. Mejia Alvarez, R. Melhem, and D. Mossé, "Incorporating Error Recovery into the Imprecise Computation Model," *Real-Time Computing Systems and Applications*, June 1999
64. F. Hoymani and D. Mossé, "Virtual Channel Management in ATM Networks," *GlobeCom*, Dec 1999.
65. H. Aydın, P. Mejia Alvarez, R. Melhem, and D. Mossé, "Optimal Reward-Based Scheduling of Periodic Real-Time Tasks," *Real-Time Systems Symposium*, Dec 1999
66. Y. Ronen, D. Mossé, and M. Pollack, "Value-Density Algorithms to Handle Transient Overloads in Scheduling," *European Conference of Real-Time Systems*, June 1999
67. F. Liberato, S. Lauzac, R. Melhem, and D. Mossé, "Global Fault Tolerant Real-Time Scheduling on Multiprocessors," *European Conference of Real-Time Systems*, June 1999
68. P. Mejia Alvarez and D. Mossé, "Responsiveness Approach for Scheduling Fault Recovery Operations in Real-Time Systems," *Real-Time Technology and Applications Symposium (RTAS'99)*, June 1999
69. L. Dong, S. Ghosh, R. Melhem, D. Mosse, W. Heimerdinger, "FTRTMach and DEOS: A Tech Transfer Approach," *Real-Time Technology and Applications Symposium (RTAS'99)*, June 1999
70. J. Oh and D. Mossé, "Teaching Real Time OSs with DORITOS," *SIG Computer Science Education Technical Symposium (SIGCSE 99)*, Mar 1999
71. S. Komandur, J. Crowcroft, and D. Mossé, "Performance Comparison of CRAM, SPAM, and SEAM," *International Conference on Computer Communications and Networks (ICCCN'98)*, Oct 1998
72. J. Oh and D. Mossé, "DORITOS (Distributed object-based Real-time Instructional Operating System): A complete package for Teaching Principles and Practices of a Real-Time Operating System," *1998 Frontiers in Education (FIE'98) (work in progress session)*, Nov 1998
73. S. Komandur, J. Crowcroft, and D. Mossé, "CRAM: Cell Re-labelling at Merge-points for ATM Multicast," *IEEE International Conference on ATM - ICATM'98*, June 1998
74. S. Lauzac, R. Melhem, and D. Mossé, "Comparison of Global and Partitioning Schems for Scheduling Rate Monotonic Tasks on a Multiprocessor," *10th Euromicro Real-Time Workshop*, June 1998
75. L. Dong, R. Melhem, and D. Mossé, "Time Slot Allocation for Real-Time Messages with Negotiable Distance Constrained Requirements (short paper)," *Real-Time Technology and Applications Symposium (RTAS'98)*, June 1998
76. S. Lauzac, R. Melhem, and D. Mossé, "An Efficient RMS Admission Control and its Application to Multiprocessor Scheduling," *Int'l Parallel Processing Symposium, (IPPS'98)*, April 1998

77. F. Hoymani and D. Mossé, "A Simulation Study of Packet Forwarding Methods over ATM: SBR Evaluation," *InfoCom*, April 1998.
78. R. Friedman and D. Mossé, "Load Balancing Schemes for High-Throughput Distributed Fault-Tolerant Servers," *16th Symposium on Reliable Distributed Systems, (SRDS'97)*, Oct 1997
79. S. Komandur and D. Mossé, "SPAM: A Data Forwarding Model for Multipoint-to-Multipoint Connection Support in ATM Networks," *International Conference on Computer Communications and Networks (ICCCN'97)*, Sep 1997
80. J. Fayman, E. Rivlin, and D. Mossé, "Providing Fault Tolerance for Active Vision Systems in Real-Time," *IEEE International Conference on Robotics and Automation (ICRA 1997)*, Apr 1997
81. J. Fayman, E. Rivlin, and D. Mossé, "Fault Tolerant Active Vision in Real-Time," *13th Israeli Symp on Artificial Intelligence*, Feb 1997
82. F. Hoymany and D. Mossé, "Switch-Borne Router for High-Performance Packet Forwarding of Connectionless Traffic," *5th Annual International Conference on Computer Communications and Networks (ICCCN'96)*, Oct 1996
83. J. Fayman, E. Rivlin, and D. Mossé, "Real-Time Active Vision with Fault Tolerance," *13th International Conference on Pattern Recognition (ICPR 1996)*, Aug 1996
84. R. Gupta, D. Mossé, and R. Suchoza, "Real-Time Scheduling using Compact Task Graphs," *16th ICDCS-International Conference on Distributed Computing Systems*, May 1996
85. B. Field, D. Mossé, and T. Znati, "Simulation of V-NET, a Versatile Network Architecture for Real-time and Non-Real-Time Traffic," *29th Annual Simulation Symposium*, Apr 1996
86. D. Chen, R. Colwell, H. Gelman, P. Chrysanthis, and D. Mossé, "A Framework for Experimenting with QoS for Multimedia Services," *IS&T/SPIE Multimedia Computing and Networking (MMCN'96)*, Jan 1996
87. F. Hoymany and D. Mossé, "More Powerful Connectionless Support Using AAL5+," *2nd IASTED International Conference on Networks*, Jan 1996
88. S. Ghosh, R. Melhem, and D. Mossé, "Enhancing Real-Time Schedules to Tolerate Transient Faults," *IEEE 16th Real-Time Systems Symposium*, Dec 1995
89. R. Botafogo and D. Mossé, "The Morena Model for Hypermedia Authoring and Browsing," *IEEE International Conference on Multimedia Computing Systems*, May 1995
90. B. Field, T. Znati, and D. Mossé, "V-NET: A Framework for a Versatile Network Architecture to Support Real-Time Communication Performance Guarantees," *InfoCom*, Apr 1995
91. D. Mossé, R. Melhem, and S. Ghosh, "Analysis of a Fault-Tolerant Multiprocessor Scheduling Algorithm," *24th International Symposium on Fault-Tolerant Computing*, Jun 1994
92. D. Mossé, "Mechanisms for System-Level Fault Tolerance in Real-Time Systems," *International Conference on Robotics, Vision, and Parallel Processing for Industrial Automation*, May 1994

93. S. Ghosh, R. Melhem, and D. Mossé, "Fault-Tolerant Scheduling on Hard Real-Time Multiprocessor Systems," *8th International Parallel Processing Symposium*, Apr 1994
94. D. Liang, D. Mossé, Y. Shi, and A. K. Agrawala, "Development and Analysis of Fault Tolerant Applications," *3rd International Symposium on Software Reliability Engineering*, Oct 1992
95. J. da Silva, Ó. Gudmundsson, and D. Mossé, "Performance of a Parallel Network Backup Manager," *USENIX Conference*, Jun 1992
96. S-T. Levi, D. Mossé, and A. K. Agrawala, "Allocation of Resources under Fault Tolerance Constraints," *IEEE 9th Real-Time Systems Symposium*, Dec 1988

Refereed Workshop and Poster Papers

1. Vinicius Petrucci, Orlando Loques and Daniel Mossé, "A dynamic configuration model for power-efficient virtualized server clusters," in *Brazilian Workshop on Real-Time Systems (WTR 2009)*, Recife, Brazil, May 2009.
2. S. Gobriel, R. Cleric and D. Mossé "Adaptations of TDMA Scheduling for Wireless Sensor Networks," in *International Workshop on Real-Time Networks (RTN'08)*, held in conjunction with ECRTS 08, Prague, July 2008.
3. A. Beal and D. Mossé, "From E-Business Strategy to IT Resource Management: A Strategy-Centric Approach to Timely Scheduling Web Requests in B2C Environments", Third IEEE International Workshop on Business-driven IT Management (BDIM 2008), Salvador, Brazil, April 2008. (in conjunction with NOMS 2008).
4. L. Bertini, J. Leite, and D. Mossé, "SISO PIDF Controller in an Energy-efficient Multi-tier Web Server Cluster for E-commerce", Second IEEE International Workshop on Feedback Control Implementation and Design in Computing Systems and Networks (Febid 2007), Munich, Germany, June 2007.
5. L. Bertini, J. Leite, and D. Mossé, "Coordinated DVS for QoS Control in Energy-efficient Server Clusters", Brazilian Workshop on Real-Time Systems (WTR 2007), Belém, Brazil, May 2007.
6. N. AbouGhazaleh, A. Ferreira, C. Rusu, R. Xu, Bruce Childers, R. Melhem and D. Mossé, "Integrated CPU and L2 Cache Frequency/Voltage Scaling using Supervised Learning", in *HiPEAC Workshop on Statistical and Machine Learning Approaches Applied to Architectures and Compilation (SMART'07)*, Ghent, Belgium, January 2007
7. A. Berfield and D. Mossé, "Efficient Scheduling for Sensor Networks," *Proceedings of the First International Workshop on Advances in Sensor Networks (IWASN 2006)*, San Jose, California, July 2006
8. S. Khattab, D. Mossé, R. Melhem, "Honeybees: Combining Replication and Evasion for Mitigating Base-station Jamming in Sensor Networks," *Proceedings of the 14th International Workshop on Parallel and Distributed Real-Time Systems (WP-DRTS'06)*, IPDPS 2006, Rhodes Island, Greece, April 2006
9. S. Khattab, D. Mossé, R. Melhem, T. Znati, "Honeypot Back-propagation for Mitigating Spoofing Distributed Denial-of-Service Attacks," *Proceedings of the 2nd International Workshop on Security in Systems and Networks (SSN'06)*, IPDPS 2006, Rhodes Island, Greece, April 2006

10. R. Xu, D. Mossé, and R. Melhem, "Evaluating a DVS Scheme for Real-Time Embedded Systems," *Second International Power-Aware Real-Time Systems Workshop*, PARC '05, Jersey City, New Jersey, USA, Sept 2005
11. R. Xu, D. Mossé, and R. Melhem, "Minimizing Expected Energy in Real-Time Embedded Systems (poster)," *ACM Int'l Conf on Embedded Software*, EMSOFT 2005, New York, Sept 2005
12. R. Xu, Cosmin Rusu, Dakai Zhu, D. Mossé, and R. Melhem, "Practical Energy-Efficient Policies for Server Clusters," *Brazilian Workshop on Real-Time*, Gramado, Brazil, May 2004
13. D. Mossé, R. Melhem, S. Gleason and C. Mason, "Implementation of a Static Power Management Scheduler in RKLinux, a Real-time Operating System," *Brazilian Workshop on Real-Time*, Natal, Brazil, May 2003
14. N. AbouGhazaleh, P. Lanigan, S. Gabriel, D. Mossé, and R. Melhem, "Dynamic Rate-Selection for Extending the Lifetime of Energy-Constrained Networks," *Workshop on Energy Efficient Wireless Communication Networks* (in conjunction with IPCC), Phoenix, Arizona, May 2004
15. T. Okumura and D. Mossé, "A Framework for Semantics-Based Network Management: Semantics-Aware Internetworking with Agent-Oriented Network Programmability" (poster), *International Workshop on Active Network Technologies and Applications*, with ANTA 2003, Osaka, Japan, May 2003.
16. V. Ramasubramanian and D. Mossé, "Statistical Analysis of Connectivity in Unidirectional Mobile Ad-Hoc Networks," *Workshop on Ad-hoc Networks (IWAHN'02)*, with ICPP'02. Vancouver, BC, August 2002
17. P. Mejia-Alvarez, E. Levner, D. Mossé, "An Integrated Heuristic Approach to Power-Aware Real-Time Scheduling," *Workshop on Power-Aware Computer Systems (PACS'02)*, Boston, Feb 2002
18. N. AbouGhazaleh, D. Mossé, B. Childers and R. Melhem, "Toward The Placement of Power Management Points in Real Time Applications," *Workshop on Compilers and Operating Systems for Low Power (COLP'01)*, Barcelona, Spain, 2001
19. André Allavena and D. Mossé, "Scheduling of Frame-based Embedded Systems with Rechargeable Batteries," *IEEE Workshop on Power Management for Real-Time and Embedded Systems*, with RTAS'01, Taipei, Taiwan, May 2001
20. Philippe Bonnet, Chang Won Choi and D. Mossé, "Distributed Query Planning in a Sensor Network," *DIMACS Workshop on Pervasive Networking*, Piscataway, NJ, May 2001
21. D. Mossé, "Timeliness and Reliability of Large-Scale Networks: A Dynamically-forming, Self-Organizing Hierarchy," *NSF/DARPA Workshop on New Visions for Large-Scale Networks*, Washington DC, March 2001,
22. D. Mossé, H. Aydin, B. Childers, and R. Melhem, "Compiler-Assisted Dynamic Power-Aware Scheduling for Real-Time Applications," *Workshop on Compiler and OS for Low Power*, with COLP'00, Philadelphia, Oct 2000
23. S. Komandur, Matt Doar, and D. Mossé, "The Domainserver Hierarchy for Multicast Routing in ATM Networks," *6th IFIP Workshop on Performance Modelling and Evaluation of ATM Networks*, UK, Jul 1998

24. S. Lauzac, R. Melhem, and D. Mossé, "Adding Fault-Tolerance to P-Fair Real-Time Scheduling," *Workshop on Embedded Fault-Tolerant Systems*, Boston, May 1996
25. K. Tew, P. Chrysanthis and D. Mossé, "Empirical Evaluation of Task and Resource Scheduling in Dynamic Real-Time Systems," *Work-In-Progress Session of the IEEE Real-Time Systems Symposium*, Washington DC, Dec 1996
26. D. Mossé and H. Ly, "User to Network QoS Parameter Transformation in Networked Multimedia Systems," *Workshop on Resource Allocation Problems in Multimedia Systems*, RTSS'96, Washington DC, Dec 1996
27. B. Field and D. Mossé, "Towards Resource Usage Adjustments for Real-Time Traffic (poster)," *5th Annual International Conference on Computer Communications and Networks*, ICCCN'96, Rockville, MD, Oct 1996
28. S. Komandur and D. Mossé, "Support for Shared Trees Over ATM Networks," *2nd International Workshop on High Speed Network Computing*, HiNet'96, Hawaii, Apr 1996
29. Y-J. Chen, D. Mossé, and S-K. Chang, "An Object-Based Model for Dependable Real-Time Distributed Systems," *2nd IEEE Workshop on Object-Oriented Real-Time Dependable Systems*, WORDS'96, Laguna Beach, CA, Feb 1996
30. Y-J. Chen, D. Mossé, and S-K. Chang, "A Framework for Modeling Dependable Real-Time Distributed Systems," *2nd IFAC Workshop on Safety and Reliability in Emerging Control Technologies*, Daytona Beach, FL, Nov 1995
31. D. Mossé, "Creating Resilient Real-Time Applications," *20th IFAC/IFIP Workshop on Real-Time Programming*, Nov 1995
32. D. Roesch, D. Mossé, and R. Botafogo, "Facilitating Navigation of the WWW (poster)," *4th World-Wide Web Symposium*, Boston, Mass, Nov 1995
33. P. Chrysanthis and D. Mossé, "Management and Delivery of Multimedia Traffic," *2nd International Workshop on Community Networking Integrated Multimedia Services to the Home*, Jun 1995
34. D. Mossé, R. Melhem, and S. Ghosh, "Transient Fault Tolerance in Real-Time Schedules," *Workshop on Composability of Fault-Resilient Real-Time Systems*, Dec 1994
35. R. Gupta, D. Mossé, and P. Gopinath, "Composable Software Integrated Circuits for Reliable Real-Time Systems," *Workshop on Composability of Fault-Resilient Real-Time Systems*, Dec 1994
36. S-K. Chang, Y-J. Chen, and D. Mossé, "Smart Objects for Dependable Real-Time Systems," *1st IEEE Workshop on Object-Oriented Real-Time Dependable Systems (WORDS'94)*, Oct 1994
37. D. Mossé and R. Botafogo, "Applications that Do and DO NOT Need Real Time," *Workshop on The Role of Real-Time in Multimedia/Interactive Computing*, with RTSS'03, Irvine, CA, Dec 1993
38. D. Mossé, "Tools for Visualizing Scheduling Algorithms," *IFIP WG 3.2 Working Conference on Visualization in Scientific Computing: Uses in University Education*, Irvine, CA, Jul 1993
39. D. Mossé, S. H Noh, B. Trinh, and A. K. Agrawala, "Multiple Resource Allocation for Multiprocessor Distributed Real-Time Systems," *First Workshop on Parallel and*

Distributed Real-Time Systems (PDRTS), IEEE IPPS'93, Newport Beach, CA, Apr 1993

40. D. Mossé and A. K. Agrawala, "On Fault Tolerance in Real-Time Systems," *1992 Workshop on Realistically Dependable and Parallel Computations*, Stony Brook, NY, Jul 1992
41. D. Mossé, M. Saksena, and A. K. Agrawala, "The Design of the MARUTI System," *Complex Systems Engineering Synthesis and Assessment Technology Workshop*, Silver Spring, MD, Jul 1992
42. R. Botafogo and D. Mossé, "Analyzing Hypertext Structures," *Workshop on Hypertext Activities*, with HyperOz'92, Australia, Feb 1992
43. D. Mossé, S. H Noh, B. Trinh, and A. K. Agrawala, "Multiple Resource Allocation and Scheduling for Multiprocessor Real-Time Distributed Systems," *Workshop of Architectural Support for Real-Time Systems*, Dec 1991
44. D. Mossé, Ó. Gudmundsson, and A. K. Agrawala, "Prototyping Real Time Operating Systems," *IEEE-CS First International Workshop on Rapid System Prototyping*, May 1991
45. Ó Gudmundsson, D. Mossé, A. K. Agrawala, and S. K. Tripathi, "MARUTI: A Hard Real-Time Operating System," *IEEE Workshop on Experimental Distributed Systems*, Oct 1990

Invited Papers, Talks and Courses

1. "Uncertainty and Dependability in CPS", position paper by Daniel Mossé and Hakan Aydin, National Workshop for Research on Transportation Cyber-Physical Systems: Automotive, Aviation, and Rail, Vienna, VA, Nov 2008.
2. "Wireless Networks for CPSd", *July 2008*
Keynote Speaker for the Workshop on Real-Time Networks, with ECRTS 2008
3. "Power Management Research at the Univ of Pittsburgh", *June 2008*
Siemens Research Center, Princeton
4. "Software Performance and Power Management in Large Scale Servers" *June 2008*
Daniel Mosse and Alexandre Ferreira, at the Seventh ACM International Workshop on Software and Performance, WOSP 2008
5. "Power Management in Chip Multiprocessor Devices", *November 2007*
Distinguished Seminar, Universidade Federal Fluminense, UFF s
6. "There are more problems in Wireless Networks than we thought", *November 2007*
Universidade Federal da Bahia, Keynote Speaker for the LaSid Annual Workshop
7. "Power Management in Server Farms and Embedded Devices", *August 2007*
Microsoft Research
8. "Power Management and Denial-of-Service Mitigation", *May 2007*
Google Pittsburgh
9. Brazilian Workshop on Real-Time Systems (WTR 2006)
keynote speaker *June 2006*
10. D. Mossé, "Power-Aware Cached DRAMs," the Dagstuhl Seminar for Low-Power Systems, Germany *April 2005*

11. D. Mossé, “Secure Critical Information Technology Infrastructure,”
Workshop on Managing Extreme Events: Transatlantic Perspectives
University of Pittsburgh, *March 2006*
12. D. Mossé, “Recent Power-management research in Real-Time Systems,”
Universidade de Aveiro, Portugal *Dec 2004*
13. D. Mossé, “On Power and Resource Management in Mobile Devices,”
Nokia Seminar on Embedded Software and Multimedia *Jun 2004*
14. Workshop on Hazard Reduction and Response in Metropolitan Regions, Pittsburgh
S-CITI: a A Secure Critical IT Infrastructure for Disaster Management 2003
15. Brazilian Fault-Tolerant Computing Symposium, Brazil mini-course *Jun 30, 1997*
16. Brazilian Fault-Tolerant Computing Symposium,
Brazil keynote speaker *Jul 2, 1997*
17. Carnegie Mellon University, PA: Real-time Lecture Series *May 13, 1997*
18. Y. Ronen, D. Mossé, and M. Pollack, “Value-Density Algorithms for the Deliberation-
Scheduling Problem,” *ACM SIGART Bulletin*, v 7, No. 2 *1996*
19. Bar-Ilan University, Israel: Colloquium Series *Dec 14, 1995*
20. Israel Institute of Technology (Technion), Israel: Colloquium Series *Nov 28, 1995*
21. Weizman Institute, Israel: Latex2e short course *Nov 23-30, 1995*
22. University of Pittsburgh, PA: Colloquium Series *Oct 27, 1995*
23. Matsushita Information Technologies Lab, Princeton: Invited Lecture *Jun 19, 1995*
24. West Virginia University, WV: Distinguished Lecture Series *Oct 27, 1992*
25. Carnegie Mellon University, PA: Real-time Lecture Series *May 14, 1992*
26. Queens University, Canada: Invited Lecture *Feb 11, 1992*
27. D. Mossé, Ó Gudmundsson, and A. K. Agrawala,
“The MARUTI System and its Implementation,”
IEEE Tech Committee on Operating Systems Newsletter, v 5, No. 3 *1991*

• STUDENTS and COMMITTEES

– Ph. D. Student Supervision and Co-Supervision

- Alexandre Ferreira:** Distributed Thermal Computing and
Memory Power Management *expected 2010*
- Luciano Bertini:** Co-advising with Julius Leite (UFF, Brazil)
Power Management for Server Farms *2009*
- Nevine AbouGazaleh:** Compiler-Operating System Dynamic
Voltage Scaling *2008*
- Sherif M. Khattab:** Roaming Servers and Honeypots for Mitigation
of DoS Attacks *2008*
- Sameh Gobriel:** Wireless Models for Power-Aware Ad-Hoc Networks *2008*
- Takashi Okumura:** Flexible and Adaptive Network Control,
with a case study in Medical Applications (pre-prelims) *2007*
- Cosmin Rusu:** Reward-Power tradeoffs in Real-Time Systems *2006*

- Dakai Zhu:** Multiprocessor Power-Aware Scheduling 2004
- Hakan Aydın:** Fault-tolerant, power-aware, optimal Reward-Based Scheduling 2001
- Libin Dong:** Real-time Scheduling with Distance Constraints 2001
- Sylvain Lauzac:** Fault-Tolerant Real-Time Scheduling for Multiprocessors 2000
- Sridhar Komandur:** ATM Multicasting 1999
- Fahad Hoymany:** Communication Protocols for ATMs 1997
- Yeong-Jia Chen:** Specification of Fault-Tolerant Real-Time Systems
using Timed Petri-Nets 1996
- Sunondo Ghosh:** Real-Time Fault-Tolerant Scheduling Algorithms 1996
- M. S. Students
- Raymond Giorgi:** Power management in three-tiered web clusters 2009
- Mark Zalar:** measurements in rate changing wireless cards 2007
- Matt Craven:** power management in embedded clusters 2005
- Ramesh Mishra:** Linux network control using netnice 2002
- Namrata Rastogi:** power management for distributed systems 2002
- Takashi Okumura:** Network Control in and out of UNIX 2000
- Hugo Varotto:** Multiprocessor Real-Time Scheduling 1999
- Kamran Farshchi:** Network Traffic Control Algorithms 1999
- David Kutz:** FT-RT-Mach and Persistent Threads for RT Train Control 1998
- Anthony Egan:** Implementation of real-time communication server 1997
- Kanaka Komandur:** Fault detection algorithms 1997
- Dmitry Mikulin:** Implementation of fault-tolerant real-time schedulers 1997
- Ha Ly:** User-to-network transformations for real-time communication 1996
- Ken Tew:** Multi-resource distributed scheduling for real-time systems, MS 1996
- Yohnes Hartoyo:** Fault-tolerant real-time scheduling survey 1996
- Adel Jomah:** Experimentation with Real-Time Communication Thesis 1996
- Andal Kasturi:** Resource adjustments in RT communication channels 1996
- Yuhua Luo:** Implementation of real-time communication in RT-Mach 1996
- Douglas Roesch:** WWW navigation 1995
- Edward Cymbalak:** Implementation of time-line scheduler in RT-Mach 1994
- Bruce Stadd:** Fault-tolerant real-time application specification 1993
- Undergraduate Students
- William Klieber:** Memory voltage scaling 2005
- Joseph Gallo:** Automatic/online data structure reorganization 2005
- Aaron Watson:** power management in embedded systems 2004
- Robert Fisher:** power management in server farms 2004
- Nicholas Swierczek:** compiler/operating system interaction for
power management 2004
- Emil Macarie:** network security with roaming servers 2003-2004

- Nicolas Baldi:** wireless communication with energy savings 2003
- Eric Humenay:** attending PhD program at University of Virginia 2003-2004
- Uri Moszkowicz (at Cornell):** rechargeable power-aware systems
obtained Intel Research Scholarship for project, attended
graduate school at Cornell 2000-2002
- Joe Atzinger (Computer Engineering project:)**
Install Linux in a custom power-aware IBM-made Pecan Bord,
measure the energy used by the system in that board. 2002
- Regis Colwell:** (supported by NSF-REU, co-advised with P. Chrysanthis)
attended graduate school in Princeton 1994-1996
- Jonathan Hill:** (supported by NSF-REU, co-advised with P. Chrysanthis)
currently Ph.D. student at the University of Virginia 1996-1997
- Archna Kalra:** (supported by Chancellor's Undergraduate Research
Fellowship), attended graduate school at UMass, Amherst 1994-1995
- D. Broudy, D. Chen, A. Cranmer, J. Drescher, M. Fletcher,
H. Gelman, D. Zorine**
(supported by NSF-REU and DARPA, co-advised with
P. Chrysanthis, R. Gupta, and R. Melhem) 1994-present
- General Advising
 - Graduate Students:** 5 students per term, average
 - Undergraduate Students:** 10 students per term, average
 - Ph.D. dissertation committees:
CompSci Dept: Diana Chang, Brian Field (1995), Chun Gong (1996), Nimish Shrivastava (1999), Jae Oh (2001), Leo Selavo (2004), Haidong Xia (2008),
Pitt Ind Engg: Pamela Ajoku (2006), *CMU CompSci:* Saowanee Saewong (2005), *UNC-CH CompSci:* UmaMaheswari Devi (2006), *Concordia University, Canada:* Yun Wang (1999), *Universita di Pisa, Italy:* Claudio Scordino (2007), *CMU CompSci:* Anthony Rowe (2009), *Linkopings University, Sweden:* Calin Curescu (2005), *Pitt, School of Information Science:* Parasak Chokesatean (2007), Hui Ling (expected 2009)
 - M.S. thesis committees: Jacques Alves da Silva, at UFF, Brazil (2008); Bryan Mills (2007)

• COURSES TAUGHT

- Course Buy-Out *Spring 2003, Spring 2004, Spring 2005*
- Engineering Project, CoE/ECE 1898 *Fall 2005*
- Freshmen Studies, fs0001 *Fall 1994*
- cs0110, Computers and Networks *Spring 2000*
- cs0447, Assembly Language Programming (2 sessions) *Fall 1993*
- cs1550, Systems Programming *Fall 1992, Spring 1993*
- cs1550, Introduction to Operating Systems
(new curriculum) *Fall 1994, Spring 1999, Fall 2001, Fall 2002, Fall 2003, Spring 2005, Spring 2006*

- cs1590, Social Implications of Computing
(New Writing course) *Spring 1995, Spring 1997, Spring 2000*
- cs1651, Advanced Systems Software
(new curriculum) *Spring 1996, Fall 1996, 1997, and 1998, 1999, Spring 2004*
(co-taught with Ahmed Amer), *Fall 2005 (co-taught with Ahmed Amer)*
- cs2510, Computer Operating Systems *Spring 1997, 1998, and 2001*
- cs2511, Advanced Computer Operating Systems *Spring 1994*
- cs2511, Advanced Computer Operating Systems (new curriculum) *Spring of 1995, 1996*
- cs2590, Distributed Operating Systems *Fall 1994*
- cs3350 Real-Time and Distributed Systems *Spring of 1993, 1997, Fall 1998, Fall 2004*
- cs3510, Advanced Topics in Operating Systems *Spring 2003*

• PROFESSIONAL SERVICE

Chair positions in conferences:

- Real-Time Systems Symposium, Rio de Janeiro, Brazil:
General Chair *2006*
- Real-Time Systems Symposium, Miami:
Program Chair *2005*
- Brazilian Workshop on Real-Time Systems, Fortaleza, Brazil:
Program Chair *2005*
- Special session in PDCS on Applications of Game Theory and Artificial
Intelligence Techniques on
Distributed Computing and Internet-wide
Computing with the Int'l Conf on Parallel and Distributed
Computing Systems (PDCS-2004): Co-organizer (with Jae Oh) *2004*
- Workshop on Games and Emergent Behaviors in Distributed Computing
Environments with PPSN (Parallel Problem-Solving in Nature):
General and program co-chair with Jae Oh *2004*
- Workshop on Power-Aware Real-Time Computing (PARC'04)
General and program co-chair, with EMSOFT 2004 *2004*
- Workshop on Constraint-Aware Embedded Software (CAES'03):
General and program co-chair *2003*
- Real-Time Technology and Applications Symposium (RTAS'02):
General co-chair *2002*
- Real-Time Technology and Applications Symposium (RTAS'01):
Program committee co-chair *2001*
- Workshop on Dependable and Real-Time E-Commerce Systems (DARE'98):
Publicity Chair *1998*
- Real-Time Education Workshop (RTEW'97):
General Chair and Program Co-Chair *1997*

- Real-Time Technology and Applications Symposium (RTAS'97):
Publicity Chair 1997

Program committee positions:

- Brazilian Workshop on Fault-Tolerant Systems 2009
- First ACM International Workshop on Medical-Grade Wireless
Networks (WiMD 2009) colocated with Mobihoc 2009
- International Conference on Embedded Software and Systems (ICESS) 2009
- Workshop on Compositional Theory and Technology for Real-Time Embedded Sys-
tems 2008-2009
- International Workshop on Real-Time Networks (RTN) 2008
- Real-Time and Network Conference (RTNS) 2008-2009
- IEEE Conference on Sensor, Mesh, and Ad Hoc Communications and Networks
(SECON) 2008
- IEEE International Conference on Emerging Technologies
and Factory Automation (ETFA) 2003-2009
- IEEE Workshop on Parallel and Distributed Real-Time Systems
(WPDRTS) 2003-2008
- International Workshop on Software Support for Portable Storage (IWSSPS), 2005-
2009
- Workshop on Operating Systems Platforms for Embedded Real-Time
Applications (OSPERT) 2006-2007
- 23rd ACM Symposium on Applied Computing (SAC) 2008
Track on Real-Time Systems
- The 12th IEEE International Conference on Embedded and Real-Time
Computing Systems and Applications (RTCSA'06) 2006
- Workshop on Power-Aware Real-Time Computing (PARC'04) 2005
- Latin-American Workshop on Dependable Automation Systems (WDAS) 2005
- ACM/IEEE Mobiquitous:
Int'l Conference on Mobile Ubiquitous Systems 2005-2008
- Workshop on Performance Issues in Mobile Devices, with HiPC 2004
- IEEE Real-Time Systems Symposium (RTSS): 2000–2004, 2007-2009
- IEEE Real-Time Technology and Applications Symposium (RTAS): 1997–2006,
2010
- EMSOFT: ACM Int'l Conf on Embedded Software 2003–2007
- Int'l Conf on Embedded and Ubiquitous Computing (EUC) 2004-2005
- IEEE Workshop on Compilers and Operating Systems for Low Power (COLP) 2003
- IEEE Workshop on Power-Aware Computer Systems (PACS) 2003, 2004
- European Conference of Real-Time Systems (ECRTS) 2003-2007
- Conference on Multimedia Computing and Networking (MMCN'03) 2003
- IEEE Workshop on Wireless Sensor Networks and Applications
(with MobiCom 2002) 2002

- Brazilian Workshop on Real-Time Systems *2002-2009*
- IEEE Workshop on Power Management for Real-Time and Embedded Systems, with RTAS *2001*
- International Conference on Distributed Computer Systems (ICDCS):
Program committee member for Real-Time Area *2001*
Program committee member for Cyber-Physical Systems Area *2008-2009*
- IEEE International Symposium on Object-oriented Real-time distributed Computing (ISORC): *2000-2001, 2009*
- International Conference on Computer Communications and Networks (ICCCN): *1999-2002*
- IEEE Real-Time Education Workshop (RTEW'99): *1999*
- IEEE Workshop on Dependable and Real-Time E-Commerce Systems (DARE'98): *1998*

Other Service:

- Co-Guest Editor of IEEE Transactions on Industrial Informatics, Special Section on Power-Aware Computing *2010*
- Advisory Committee, Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing *2008-2009*
- International Journal on Embedded Systems (IJES): *2006*
served on Guest Editorial Board
- Brazilian Workshop on Real-Time Systems: *2006*
member of steering committee
- Workshop on Research Directions for Security and Networking in Critical Real-Time and Embedded Systems: *2006*
member of steering committee and panelist
- Council for Physical Sciences: panel for proposal review *2005*
- Journal of Real-Time Systems: associate editor *2003-present*
- Advisory Committee, Workshop on Methodologies in Low Power Design *2003-2004*
- IEEE Transactions on Computers: associate editor *2001-2003*
- ARTIST Project US Advisory Committee: *2002-2004*
European project committed and mandated to providing a roadmap and a long term vision in the area of real-time software and systems in Europe.
- NSF: panels for proposal review *1997, 1999, 2001-present*
- NSERC: proposal review *2007*
- ACM and IEEE Computer Society, member *1986-present*

• DEPARTMENTAL AND UNIVERSITY OF PITTSBURGH SERVICE

- Introduction to A&S Poster Competition**, judge *2008*
- Freshman Midterm Progress Report**, participant *2008*
- CS Election Committee**, Chair *2006*

FAS Tenure Council	<i>2005</i>
Graduate Program and Exams Committee, Chair or co-Chair	<i>2003-present</i>
Ad-Hoc Tenure Committee	<i>Spring 2004</i>
Council on Academic Computing, Future of Computing and Security Subcommittee	<i>2002-present</i> also in the Subcommittee for the
Telecom Recruiting Committee, CS representative	<i>2003 season</i>
Computer and Communications Committee, Chair	<i>1998-1999, 2002-2003</i>
FOCUS Group Leader, to aid under-represented, first-year students	<i>1997-1998</i>
Faculty Admissions Support Team, for special recruitment included activities in Pittsburgh and trip to other cities	<i>1997-1998</i>
Undergraduate Advising Committee	<i>1995-1998</i>
Graduate Program and Examinations Committee	<i>1994-1996</i>
Computer and Communications Committee	<i>1994-present</i>
Computing Needs Committee	<i>1992-1994</i>
Teaching Assistant Training and Evaluation Committee	<i>1992-1994</i>
New Undergraduate Systems Curriculum: contributed heavily to reformulation of undergraduate systems curriculum	<i>1992-1994</i>
Graduate Systems Curriculum: coordinated revision of graduate curriculum	<i>1993-1994</i>
Association for Computing Machinery: helped to establish student chapter	<i>1993</i>
Parallel and Distributed Systems Lecture Series: coordinator	<i>1993</i>
Unix Club: initiated and organized a series of lectures on Unix at Pitt	<i>1993</i>
• MISCELLANEOUS	
Academic Entrepreneurship: Business of Commerical Innovation for Faculty, University of Pittsburgh Katz Graduate School of Business	<i>2002</i>
Advisor, Turn Left, Independent Organization, Cornell Univ	<i>2000-2001</i>
President of the Graduate Student Executive Council, Department of Computer Science, University of Maryland	<i>1989-1991</i>
President of the ACM, Student Chapter, Department of Computer Science, University of Maryland	<i>1988-1990</i>
Editor/Writer of the Graduate Student Newsletter, Department of Computer Science, University of Maryland	<i>1988-1989</i>
Languages: Portuguese, English, Spanish (fluent); French, Hebrew, Italian (speak, read)	
Brazilian Music Radio Program, DJ, Pacifica Radio, Washington, DC	<i>1988-1990</i>