

**Hanan Lutfi Lutfiyya**  
Curriculum Vita

**Business Address**

Department of Computer Science  
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**Citizenship:** United States and Canada dual citizen

## Research Interests

Distributed Applications and Systems Management,  
Policy-Based Management, QoS Management, Autonomic Computing, Context-Aware Application  
Cloud Computing, Virtualization, Resource Management

## Academic Employment History

07/92-	University of Western Ontario, Department of Computer Science
07/11-	<b>Chair of Computer Science</b>
07/09-07/11	<b>Chair of Graduate Studies</b>
07/02-07/06	<b>Associate Chair</b>
07/00-07/02	<b>Chair of Graduate Studies in Computer Science</b>
07/06-	<b>Full Professor of Computer Science</b>
07/99-present	<b>Associate Professor of Computer Science</b>
07/92-06/99	<b>Assistant Professor of Computer Science</b>
8/89-5/92	University of Missouri-Rolla, Department of Computer Science
8/91-5/92	<b>Graduate Teaching Assistant</b>
8/89-8/91	<b>Graduate Research Assistant</b>
8/85-5/87	University of Iowa, Department of Computer Science
8/85-5/87	<b>Graduate Teaching Assistant</b>

## Education

8/89-5/92 Missouri University of Science and Technology, Rolla, Missouri

- Ph.D. in Computer Science  
Dissertation Title: *Fault Tolerance in Concurrent Systems Through Formal Methods*
- 8/85-5/87 University of Iowa, Iowa City, Iowa  
Master of Science in Computer Science
- 8/82-8/85 Yarmouk University, Irbid, Jordan  
Bachelor of Science in Computer Science with Honor

## **Awards/Honors**

- 2009-2011 University Students' Council Teaching Honour Roll
- 2006-2008 Faculty Scholar, The University of Western Ontario
- 1997 Nominated for Undergraduate Teaching Award, The University of Western Ontario
- 1991 Amoco Foundation Summer Fellowship, University of Missouri-Rolla
- 1986 The 1986 King Hussein Award for Academic Excellence in Computer Science, Yarmouk University
- 12/83-8/85 President's Honor List, Yarmouk University

## **Scientific and Professional Responsibilities**

1. Program Technical Program Co-Chair, IEEE/IFIP Network Operations and Management Symposium 2014
2. Associate Editor, IEEE Transactions on Network and Services Management (TNSM), 2012-2015
3. Associate Editor, International Journal of Network Management (IJNM), 2012-2013
4. Technical Advisory Committee for Conference on Network and Services Management (CNSM)
5. Member of Mitacs College of Reviewers, 2012-
6. CIPS Reviewer, University of Prince Edward Island, March 2012
7. CIPS Reviewer, Carleton University, March 2011
8. CIPS Reviewer, University of Regina, March 2010
9. Chair of the Natural Sciences and Engineering Research Council (NSERC) of Canada Grant Selection Committee for the Advanced Communications and Management of Information Strategic Grants, 2010.

10. Member of the Natural Sciences and Engineering Research Council (NSERC) of Canada Grant Selection Committee for the Advanced Communications and Management of Information Strategic Grants Panel, (2008-2011).
11. Council Member of Canada's Association of Information Technology Professionals (CIPS) Accreditation Body.
12. Local Organizer of CSER Conference to be held at UWO, June 2008.
13. External Academic Reviewer for School of Computing, Queen's University, November 2006.
14. CIPS Reviewer, University of Calgary, February 2006
15. Member of the Consortium for Software Engineering Research (CSER) (May 2005-).
16. CIPS Reviewer, University of New Brunswick, April 2005.
17. Executive Director, Ontario Consortium for Graduate Education in Software Engineering (CONGESE) program (November 2004-).
18. Course Coordinator for the Ontario Consortium for Graduate Education in Software Engineering (CONGESE) program (March 2002-November 2004).
19. Member of the Natural Sciences and Engineering Research Council (NSERC) of Canada Grant Selection Committee for Computing and Information Science (July 1999 - July 2002).
20. Member of the Canadian ITU group working on an international standard for using UCMs as a User Requirements Notation (September 2000 - ).
21. Member of the Ontario Graduate Scholarship (OGS) Doctoral Panel for Computer Science (2000-2001).

## Research Activities

### Funded Research Activities

1. Policy-Based Framework for Security in MANETS, *Communications Research Centre (CRC)*, \$30,000, 2012-2013.
2. Developing Next Generation Ultra-Large Scale (ULS) Software Systems, Ontario Research Fund Research Excellence (ORF), \$3,699,000
3. Evaluating Policies, *Fujitsu*, \$14,000, 2010.

4. Cross-Layer Optimzation, *Communications Research Centre (CRC)*, \$30,000, 2010-2011.
5. Policy-Based Management Systems for Distributed Systems, *NSERC Discovery Grant*, \$34,600 a year, 2008-2013.
6. Building an FPGA for the WLRU Cache Replacement Algorithm, Western Innovation Fund, \$25,000.
7. Autonomic Computing for Grid Systems, NSERC CRD grant( with M. Bauer and M. Perry (co-PIs)), \$224,000, 2005-2008.
8. Investigating Policy-Driven Management Techniques in Data Centers in Support of Service-Level Objectives, *IBM*, \$38,000 a year, 2004-2006.
9. Updating an Experimental Laboratory to Support Clusters and Storage in the Management of Distributed Applications, *NSERC Equipment Grant*, \$34,817.
10. Policy-Driven Quality of Service Management in Distributed Systems, *NSERC Discovery Grant*, \$37,000 a year, 2003-2008.
11. Upgrade to Distributed Systems Laboratory, *NSERC Equipment Grant*, 2001, (with M. Bauer (co-PI)), \$28,754.
12. Quality of service and distributed systems management, *NSERC Industrially Oriented Research Grant*, 2000-2003, \$85,000 a year (with G. Bochmann (Univ. of Ottawa)).
13. Tivoli Software Donation, *IBM Canada*, \$547,500.
14. Policy-Driven Quality of Service (QoS) Management, *Communications and Information Technology Ontario (CITO)*, 1998-2000, \$80,000 (with M. Bauer (Project Leader), J. Andrews, A. Hafid, D. Makrakis and D. Sainani)
15. Policy-Driven Management for Distributed Systems, *NSERC Operating*, 1999-2002, (\$20,900 a year)
16. Policy-Driven Management for Distributed Systems, *NSERC Operating*, 1998, (\$19,000 a year)
17. Clinical Data Module, *Bayer Inc.*, \$60,000 (with M.Edmonds (PI), M. Bauer, Sylvia Osborn)
18. Clinical Data Module, *Bayer Inc.*, \$60,000 (with M.Edmonds (PI), M. Bauer, Sylvia Osborn)
19. Electronic Commerce on the Internet, *Canadian Institute for Telecommunications Research (CITR)*, 1998-2002, approved, first year funding is \$55,500.

20. Middleware Evaluation, *IBM*, 1997, \$10,000 (with M. Bauer)
21. Diabetes: Home Monitoring, *Health Evidence Application and Linkage Network (HEALNet)*, 1997-1998, \$36,000 (with M. Edmonds (PI), M. Bauer, Sylvia Osborn)
22. Diabetes: Home Monitoring, *HEALNet*, 1996-1997, \$32,060 (with M. Edmonds (PI), M. Bauer, Sylvia Osborn)
23. Run-Time Assurance for Distributed Computing, *NSERC Operating*, 1996-1998, \$26,000 (\$13,000 a year)
24. Diabetes: Clinical Module, *HEALNet*, 1996 \$30,000 (with M. Edmonds (PI), M. Bauer, Sylvia Osborn)
25. Equipment Grant, *UWO Internal*, 1994-1995 \$6,000
26. Management of Distributed Applications/Systems, *NSERC CRD*, 1994-1997, \$328,500 (with M. Bauer)
27. A Massively Parallel Computing Facility, *NSERC Equipment*, 1993-1996, \$152,284 (with N. Petersen and M. Bauer (PIs) and many others)
28. Run-Time Assurance for Distributed Computing *NSERC Individual*, 1993-1996 \$51,000 (\$17,000 per year)
29. Automating Translation of Verification Proofs, *UWO Internal*, 1992-1993, \$6000
30. UWO-Startup Grant, *UWO Internal*, 1992-1993, \$7500

## Research Contributions

### Edited Books

- [1] H. Lutfiyya and Y. Diao (Eds.): *Network and Services Management*, IEEE Communications Society, October 2010.
- [2] H. Lutfiyya, M. Burgess and D. Wanjsekera (Eds.): *Policies for Distributed Systems and Networks*, IEEE Computer Society, June 2006.
- [3] H. Lutfiyya and J. Singer (Eds.): *Proceedings of the 14th Annual IBM Centre for Advanced Studies Conference on Collaborative Research*, IBM, October 2004.
- [4] H. Lutfiyya, J. Moffet and F. Garcia (Eds.): *Policies for Distributed Systems and Networks*, IEEE Computer Society, June 2003.

## Refereed Journal Publications

- [5] K.Ramachandran, H. Lutfiyya and M. Perry, “A Privacy Preserving Solution for Webmail Systems with Searchable Encryption”, In *International Journal on Advances in Security*, volume 5, number 1, 2010, pp. 36-45.
- [6] Yixin Diao, H. Lutfiyya, N. Liman and R. Boutaba “Report on IEEE/IFIP CNSM”, *Journal of Network and Systems Management (Invited)*, pp. 137-142.
- [7] G. Keller and H. Lutfiyya “Replication and Migration as Resource Management Mechanisms for Virtualized Environments”, In *International Journal on Advances in Software*, Volume 3, Number 4, 2011, pp. 333-350.
- [8] K.Ramachandran, H. Lutfiyya and M. Perry, “Decentralized Approach to Resource Availability Prediction using Group Availability in a P2P Desktop Grid”, In *Future Generated Computer Systems*, 2010, 7 pages.
- [9] W. Song and H. Lutfiyya, “Active PDP Discovery for the Policy based MANET Management”, *IEICE Transactions*, Vol. E92-B, No. 3, 2009, pp. 1027-1030.
- [10] Y. Tang, V. Tasic and H. Lutfiyya, “An Analysis of Web Service SLA Management Infrastructures Based on the C-MAPE Model”, *International Journal of Business Process Integration and Management*, Volume 4, Issue 3, 2009, pp. 209-218.
- [11] D. Williams and H. Lutfiyya, “Fault-Tolerant Authentication Services”, *Journal of Computers and Applications*, Volume 29, No 2, 2007.
- [12] H. Lutfiyya, M. Burgess and D. Wijesekera “Report on Policy 2006: Workshop on Policies for Distributed Systems and Networks”, *Journal of Network and Systems Management*, Volume 14, Number 4, 2006, pp. 599-602.
- [13] V. Tasic, B. Pagurek, B. Esfandiari and H. Lutfiyya, “Analytical Comparisons of Switching of Web Services and Switching of Service Offerings”, *International Journal of Web and Grid Services*, Volume 2, Issue 1, December 2006, pp. 50-67.
- [14] V. Tasic, B. Pagurek, B. Esfandiari and H. Lutfiyya, “Extending Apache Axis for Monitoring of Web Service offerings”, *International Journal of Case Studies in Electronic Commerce*, Volume 2, Issue 3, 2006, pp. 53-75.
- [15] W. Kulju and H. Lutfiyya, “Design and Implementation of an Application Layer Protocol for Reducing User-Hints and Policies”, *Journal of Network and Systems Management*, Volume 14, Number 2, June 2006, pp. 195-220.
- [16] M. Katchabaw, H. Lutfiyya and M. Bauer, “Usage-Based Service Differentiation for End-to-End Quality of Service”, *Elsevier Journal on Computer Communications*, Volume 28, Number 18, November 2005, pp. 2146-2159.

- [17] H. Lutfiyya and H. S. Hassanein, "On Current Areas of Interest in End-to-End Quality of Service", *Elsevier Journal on Computer Communications*, Volume 28, Number 18, November 2005, pp. 1985-1986.
- [18] M. Gittens, H. Lutfiyya and M. Bauer, "Continuous Evolutionary One-Step-Ahead Testing", *ACM SIGSOFT Software Engineering Notes*, Volume 29, Issue 5, September 2004, pp. 1-4.
- [19] H. Abdu, H. Lutfiyya and M. Bauer, "A Framework for Efficient Management of Management Configurations" *Elsevier Journal on Computer Networks* , Volume 46, Number 4, November 2004, pp. 437-463.
- [20] H. Lutfiyya, F. Garcia and J. Moffett, "Report on the Policy 2003: Workshop on Policies for Distributed Systems and Networks ", *Journal of Network and Systems Management*, Volume 11, Number 3, September 2003, pp. 373-376.
- [21] H. Abdu, H. Lutfiyya and M. Bauer, "A Model for Efficient Configuration of Management Agents in Distributed Systems", In *Performance Evaluation Journal*, Volume 54, Number 4, December 2003, pp. 285-309.
- [22] H. Abdu, H. Lutfiyya and M. Bauer, "Optimising the Management of Distributed Systems", *Journal of Network and Systems Management*, December 2002, Volume 10, Number 4, pp. 505-530.
- [23] J. Andrews and H. Lutfiyya, "Experience Report: A Software Project Maintenance Course", *IEEE Transactions on Education*, Volume 43, Number 4, November 2000, pp. 383-388.
- [24] N. Vasiliou and H. Lutfiyya, "Providing a Differentiated Quality of Service in a World Wide Web Server", *Performance Evaluation Review (ACM Sigmetrics)*, Volume 28, Number 2, September 2000, pp. 22-27.
- [25] M. Katchabaw, H. Lutfiyya, and M. Bauer, "Driving Resource Management with Application-Level Quality of Service Specifications", *Journal of Decision Support Systems*, Volume 28, Number 1-2, March 2000, pp. 71-87.
- [26] H. Lutfiyya, A. Marshall, M. Bauer, P. Martin and W. Powley, "Configuration Maintenance for Distributed Application Management", *Journal of Network and Systems Management*, Volume 8, Number 2, June 2000, pp. 219-244.
- [27] H. Lutfiyya, A. Marshall, M. Bauer, and D. Stokes, "Fault Management in Distributed Systems: A Policy-Driven Approach", *Journal of Network and Systems Management*, Volume 8, Number 4, December 2000, pp. 245-261.
- [28] C. Turner and H. Lutfiyya, "Automating Fault Location in Distributed Systems", *Journal of Parallel and Distributed Systems and Networks*, 1999, Volume 2, Number 2, 88-99.

- [29] M. Katchabaw, S. Howard, H. Lutfiyya, A. Marshall, and M. Bauer, “Making Distributed Applications Manageable through Instrumentation”, *Journal of Systems and Software*, Volume 45, Number 2, March 1999, pp. 81-97.
- [30] L. Kari, H. Lutfiyya, G. Paun, C. Martin-Vide, “Bringing PC Grammars Closer to Hoare’s CSP”, *Grammatical Models of Multi-Agent Systems*, In *Topics and Computer Mathematics Series*, 1999, Volume 8, Gordon and Breach, London, pp. 64-86.
- [31] P. Brusil and J. Hellerstein and H. Lutfiyya, “Applications Management—Current, Practices, Research Results and Future Directions”, In *Journal of Network and Systems Management*, Volume 6, Number 3, September 1998, pp. 361-366.
- [32] M. Edmonds, M. Bauer, S. Osborn, H. Lutfiyya, J. Mahon, G. Diog, P. Grundy, C. Gittens, G. Molenkamp, D. Fenlon, “Using the Vista 350 Telephone to Communicate the Results of Home Monitoring of Diabetes Mellitus to a Central Database and to Provide Feedback”, *International Journal of Medical Informatics*, Volume 51, August-September 1998, pp. 117-125.
- [33] M. Bauer, R. Bunt, A. El Rayess, P. Finnigan, T. Kunz, H. Lutfiyya, A. Marshall, P. Martin, G. Oster, W. Powley, J. Rolia, D. Taylor, and M. Woodside, “Managing Distributed Applications and Systems: An Architectural Experiment”, *IBM Systems Journal*, 1997, Volume 36, Number 4, pp. 508-526.
- [34] H. Lutfiyya, M. Schollmeyer, and B. McMillin, “Formal Generation of Executable Assertions for a Fault-Tolerant Bitonic Sort”, *Responsive Computer Systems - Dependable Computing and Fault Tolerance*, Springer-Verlag, 1992, 7:71–96.
- [35] H. Lutfiyya, B. McMillin, P. Poshyanonda, and C. Dagli, “Composite Stock Cutting Through Simulated Annealing”, *Journal of Mathematical and Computer Modelling*, 1992, Volume 16, Number 2, pp. 57-74.

### **Refereed Book Chapters**

- [36] M. Katchabaw, H. Lutfiyya and M. Bauer, “A Model for Resource Management to Support Quality of Service in Electronic Commerce Applications”, *Electronic Commerce Technology Trends: Challenges and Opportunities*, pp. 239-254, IBM Press, 2000.
- [37] H. Lutfiyya, “A Mathematical Model of Distributed Systems Behavior”, *Fault Tolerance for Multicomputers: The Application-Oriented Paradigm*, pp. 145–158, Ablex Publishing Corporation, Norwood, NY, 1997.



- [38] H. Lutfiyya, “A Formal View – Changeling”, *Fault Tolerance for Multicomputers: The Application-Oriented Paradigm*, pp. 159–176, Ablex Publishing Corporation, Norwood, NY, 1997.
- [39] B. McMillin, H. Lutfiyya, and G. Tsai, “Formal Methods to Generate and Understand Distributed Computing Systems”, *Parallel Computer Architectures and Algorithms*, pp. 351–368, IEEE Computer Society, 1995.

### Refereed Conference Publications

- [40] G. Keller, M. Tighe, H. Lutfiyya and M. Bauer, DCSim: A Data Centre Simulation Tool, To appear in *IFIP/IEEE International Symposium on Integrated Network Management*, 2013. IM’13. 2 pages.
- [41] G. Foster, G. Keller, M. Tighe, H. Lutfiyya and M. Bauer, The Right Tool for the Job: Switching Management Strategies at Runtime, To appear in *IFIP/IEEE International Symposium on Integrated Network Management*, 2013. IM’13. 8 pages.
- [42] M. Tighe, G. Keller, M. Bauer, and H. Lutfiyya, DCSim: A Data Centre Simulation Tool for Evaluating Dynamic Virtualized Resource Management, Appeared in the 6th International DMTF Academic Alliance Workshop on Systems and Virtualization Management, 8 pages, 2012.
- [43] G. Keller, M. Tighe, and H. Lutfiyya, M. Bauer, ”An Analysis of First Fit Heuristics for the Virtual Machine Relocation Problem”, Appeared in the 6th International DMTF Academic Alliance Workshop on Systems and Virtualization Management, 8 pages, 2012.
- [44] C. Yew and H. Lutfiyya, “A Middleware and Algorithms for Trust Calculation from Multiple Evidence Sources”, Appeared in the *6th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, 6 pages.
- [45] A. Khalaj, H. Lutfiyya, M. Perry, “A Proxy-Based Mobile Computing Infrastructure”, Appeared in International Conference on Mobile, Ubiquitous, and Intelligent Computing (MUSIC 2012), 8 pages, 2012.
- [46] W. Mamun, H. Lutfiyya, D. Kidston, L. Li, “Distinguishing Faults in MANETS”, Appeared in the 13th IEEE/IFIP Network Operations and Management Symposium (NOMS 2012), 4 pages.
- [47] M. Maza, H. Lutfiyya, M.Katchabaw and M. Daley, “Curriculum Initiative on Parallel and Distributed Computing at the University of Western Ontario”, Appeared in *Proceedings of EduPar-12*, 2012

- [48] H. Otsuka and H. Lutfiyya “Using Strategy Trees in Change Management in Clouds”, IEEE Conference on Network and Service Management (CNSM 2011), 2011 (9 pages)
- [49] W. Manum, H.Lutfiyya, D. Kidston, L. Li “Cross-Layer Cluster-Based Failure Detection in MANETS”, IEEE Conference on Network and Service Management (CNSM 2011), 2011 (7 pages)
- [50] K. Ramachandran, H. Lutfiyya, M. Perry, “Chaavi: A Privacy Preserving Architecture for Webmail Systems”, Cloud Computing Conference, 2011 (6 pages)
- [51] A. Bou Nassif and H. Lutfiyya “Measuring the Usage of SaaS Applications Based on Utilized Features”, Appeared in the *1st International Conference on Cloud Computing and Services Science (CLOSER 2011)*.
- [52] C. Yew and H. Lutfiyya, “Middleware-Based Approach to Supporting Trust-Based Service Selection”, Appeared in *12th IFIP/IEEE International Symposium on Integrated Network Management (IM 2011)*, 8 pages.
- [53] A. Pokuldo, G. Keller, and H. Lutfiyya “Managing Dynamic Memory Allocations in a Cloud through Golondrina”, In *The 4th International DMTF Academic Alliance Workshop on Systems and Virtualization Management: Standards and the Cloud (SVT 2010)*, 8 pages.
- [54] A. Ouda, H. Lutfiyya, and M.Bauer “Automatic Policy Mapping to Management System Configurations”, In *Symposium on Policies for Networks and Distributed Systems (Policy 2010)*, 8 pages.
- [55] A. Khalaj, H. Lutfiyya, and M. Perry “The Proxy-Based Mobile Grid”, In the Fourth International Conference on MOBILE, Wireless, MiddleWARE, Operating Systems and Applications, (MobileWare 2010), 8 pages.
- [56] C. Yew and H. Lutfiyya, “Introduction to MAGNATE: Gathering and Analysis of Trust Evidence”, Workshop on Business-Driven Management (BDIM 2010), 2 pages.
- [57] K. Ramachandran, H. Lutfiyya and M. Perry, In “Decentralized Resource Availability Prediction for a Desktop Grid”, IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, May 2010, 6 pages.
- [58] G. Keller and H. Lutfiyya, ”Replication and Migration as Resource Management Mechanisms for Virtualized Environments”, In The Sixth International Conference on Autonomic and Autonomous Systems (ICAS 2010), March 2010, 6 pages.
- [59] W. Song and H. Lutfiyya “Delivery-Guaranteed GEOCAST in MANETs by using ZHLS”, In *International Conference on Computer Sciences and Convergence Information Technology*, 2009, 6 pages.

- [60] B. Simmons and H. Lutfiyya “Achieving High-Level Directives Using Strategy Trees” *Fourth IEEE/IFIP International Workshop on Modelling Autonomic Communications Environments (MACE 2009)*, 2009, 14 pages.
- [61] A. Ouda and H. Lutfiyya, “Mapping Policy Events to Management Services”, In the Proceedings of International Symposium on Policies for Distributed Systems and Networks, 2009, 4 pages.
- [62] N. Lemieux and H. Lutfiyya, “WHLocator: A Hybrid Indoor Positioning System”, In the Proceedings of the ACM International Conference on Pervasive Services (ICPS 2009), 2009, 8 pages.
- [63] S. Rehman, W. Song and H. Lutfiyya “A Scalable PBNM Framework for MANET Management” In the Proceedings of the *11th IFIP/IEEE International Symposium on Integrated Network Management (IM 2009)*, 8 pages.
- [64] B. Simmons and H. Lutfiyya “Strategy-Trees: A Feedback Based Approach to Policy Management” *Third IEEE/IFIP International Workshop on Modelling Autonomic Communications Environments (MACE 2008)*, 2008, pp. 26-37.
- [65] M. Galizia and H. Lutfiyya “Improving Efficiency and Performance of Distributed File-Systems”, *Seventh IEEE International Symposium on Network Computing and Applications*, 2008, pp. 249-252.
- [66] C. Yew, V. Tasic and H.Lutfiyya “On Integrating Trust into Business-Driven Management of Web Services and Their Compositions”, *Third IEEE International Workshop on Business-Driven IT Management (BDIM 2008)*, pp. 102-104.
- [67] A. McCloskey, B. Simmons and H. Lutfiyya “Policy-Based Dynamic Provisioning in Data Centers based on SLAs, Business Rules and Business Objectives”, *IEEE/IFIP Network and Operations Management Symposium (NOMS 2008)*, April 2008, 4 pages.
- [68] H. Lutfiyya, M. Perry and C. Yew “Trust and Autonomic Systems”, 2008 International MCETECH Conference on e-Technologies, 2008, pp. 239-242.
- [69] A. Ouda and H. Lutfiyya, “Towards Self-Configuring Policy-Based Management Systems”, In the Proceedings of International Symposium on Policies for Distributed Systems and Networks, 2008, 4 pages.
- [70] V. Tasic, B Suleiman, H Lutfiyya, “UML Profiles for WS-Policy4MASC as Support for Business Value Driven Engineering and Management of Web Services and their Compositions”, *IEEE International Conference on Enterprise Distributed Object Computing Conference*, 2007, 157-169.

- [71] S. Phillips, M. Katchabaw, and H. Lutfiyya, “WLocator: A Location Positioning System”, *Proceedings of the IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob2007)*, October 2007, 9 pages.
- [72] S. Rehman, W. Song, and H. Lutfiyya, “Associativity-based Adaptive Weighted Clustering for Large-Mobile Ad Hoc Networks”, *International Conference on Parallel and Distributed Computing and Systems (PDCS 2007)*, 2007, 5 pages.
- [73] H. Liang and H. Lutfiyya, “A Cyberforaging Infrastructure Based on Web Services”, *The Second International Workshop on Self-Adaptability and Self-Management of Context-Aware Systems (SELF2007)*, 2007, 6 pages.
- [74] B. Simmons, A. McCloskey and H.Lutfiyya, “Dynamic Provisioning of Resources in Data Centers”, *The Third International Conference on Autonomic and Autonomous Systems (ICAS 2007)*, 2007, 6 pages (won best paper award).
- [75] W. Aly and H. Lutfiyya “Feedback Control Theoretic Technique for Data Centers”, *The Third International Conference on Autonomic and Autonomous Systems (ICAS 2007)*, June 2007, 6 pages.
- [76] W. Aly and H. Lutfiyya “Dynamic Adaptation of Policies in Data Center Management”, *IEEE International Workshop on Policies for Networks and Distributed Systems (Policy 2007)*, June 2007, pp. 266-270.
- [77] V. Tasic and H. Lutfiyya “Integrating Business-Driven IT Management (BDIM) with Value-Based Software Engineering (VBSE)”, *IEEE Workshop on Business-Driven IT Management* associated with IM 2007, 2 pages.
- [78] W. Aly and H. Lutfiyya “Developing Autonomic Feedback Control for Heterogeneous Systems Using Cascaded Controllers”, *IEEE 8th International Symposium on Autonomous Decentralized Systems (ISADS 2007)*, March 2007, pp. 484-491.
- [79] Y. Tang and H. Lutfiyya “Book Review of Web Services in the Enterprise: Concepts, Standards, Solutions, and Management”, *Workshop on Middleware for Web Services*, associated with the *10th IEEE International Enterprise Distributed Object Computing Conference (EDOC 2006)*, September 2006, p. 16.
- [80] V. Tasic, H. Lutfiyya and Y. Tang, “Extending Web Service Offerings Infrastructure (WSOI) for Management of Mobile/Embedded XML Web Services”, *Proceedings of the 8th IEEE International Conference on Enterprise Computing, E-Commerce and E-Services (CEC/EEE 2006)*, June 2006, pp. 571-578.
- [81] H. Kaminski, K. Sherdil, H. Lutfiyya, N. Madhavji and M. Perry, “Differentiating Web Service Offerings”, *IEEE International Conference on Information Society (i-Society)*, August 2006, pp. 7-10.

- [82] V. Tasic, Y. Tang and H. Lutfiyya, "Web Service offerings Language (WSOL) Support for Context Management of Mobile/Embedded XML Web Services" *2006 International Conference on Internet and Web Applications and Services/Advanced Conference on Telecommunications*, February 2006, pp. 156-161.
- [83] B. Simmons and H. Lutfiyya, "A Policy-Based Framework for Managing Data Canters", *IEEE/IFIP Network and Operations Management Symposium (NOMS 2006)*, April 2006, 4 pages.
- [84] V. Tasic, H. Lutfiyya and Y. Tang, "A Management Infrastructure for Mobile/Embedded XML Web Services", *IEEE/IFIP Network and Operations Management Symposium (NOMS 2006)*, April 2006, 4 pages.
- [85] K. Lee, W. Song and H. Lutfiyya, "Management of PDP/PEP for PBNM in MANETs", *IEEE/IFIP Network and Operations Management Symposium (NOMS 2006)*, April 2006, 4 pages.
- [86] A. Ouda, M. Bauer and H. Lutfiyya, "Towards Automating the Adaptation of Management Systems to Changes in Policies", *IEEE/IFIP Network and Operations Management Symposium (NOMS 2006)*, April 2006, 4 pages.
- [87] Y. Tang, V. Tasic and H. Lutfiyya, "An Analysis of Web Services QoS Management Infrastructures based on the C-MAPE Framework", *Workshop on Contract Architectures and Languages (CoALa2005)* held in conjunction with *Enterprise Distributed Object Computing (EDOC 2005)*, September 2005.
- [88] V. Tasic, H. Lutfiyya and Y. Tang, "On Requirements for Management of Mobile/Embedded XML Web Services and Corresponding Management Systems", *7th International Conference On Telecommunications in Modern Satellite, Cable and Broadcasting Services, (TELSIKS2005)*, September 2005, pp. 57-60.
- [89] W. Aly and H. Lutfiyya, "Using Feedback Control To Management QoS for Clusters of Servers Providing Service Differentiation", *Proceedings of the IEEE Global Telecommunications Conference 2005 (Globecom 2005)*, December 2005, pp. 960-964.
- [90] S. Cuddy, H. Lutfiyya, M. Katchabaw, "Enhancing Service Discovery Protocols with Dynamic Information", *Proceedings of the IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob2005)*, August 2005, Volume 4, pp. 13-20.
- [91] M. Paciga and H. Lutfiyya, "Herecast:An Open Infrastructure for Location-Based Services Using WiFi", *Proceedings of the IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob2005)*, August 2005, Volume 4, pp. 21-28.

- [92] S. Norman, M. Katchabaw and H. Lutfiyya, "Taking Dependencies into Account in Grid Resource Allocation", *Proceedings of HP Openview University Association 12th Plenary Workshop (HP-OVUA'05)*, July 2005, pp. 225-236.
- [93] B. Simmons and H. Lutfiyya, "Policies, Grids and Autonomic Computing", *Design and Evolution of Autonomic Applications Software* (workshop associated with the *IEEE 27th International Conference on Software Engineering*), May 2005, pp. 77-81.
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- [96] M. Gittens, H. Lutfiyya and M. Bauer, "An Extended Operational Profile Model", *Proceedings of the International Symposium on Software Reliability Engineering (ISSRE 2004)*, November 2004, pp. 314-325.
- [97] C. Yew and H. Lutfiyya, "Configuration Management for a Context-Aware Application Architecture" Accepted to appear in the On-Line *Proceedings of HP Openview University Association 11th Workshop (HP-OVUA'04)*, 2004, 10 pages (no page numbers).
- [98] S. Cuddy and H. Lutfiyya, "Adding Dynamic Attributes to Service Discovery Protocols", Accepted as a poster paper to appear in the On-Line *Proceedings of HP Openview University Association 11th Workshop (HP-OVUA'04)*, 2004, 1 page.
- [99] M. Gittens, H. Lutfiyya and M. Bauer, "Continuous Evolutionary One-Step-Ahead Testing", Position paper in the *Workshop on Empirical Research In Software Testing (WERST)*, workshop at the *International Symposium on Software Testing and Analysis*, July 2004.
- [100] B. Simmons and H. Lutfiyya, "Using Application-Feedbacks in Differentiated Services and Policies", *Proceedings of the 2004 IEEE/IFIP Network Operations and Management Symposium (NOMS2004)*, April 2004, pp. 45-58.
- [101] M. Gittens, H. Lutfiyya, M. Bauer, C. Gittens, "Extending the Operational Profile Model", *Proceedings of the International Symposium on Software Reliability, Fast Abstracts*, November 2003, 2 pages.

- [102] S. Taylor and H. Lutfiyya, “Predicting Violations of QoS Requirements in Distributed Systems”, *Proceedings of the IEEE/IFIP Management of Multimedia Networks and Services (MMNS2003)*, September 2003, pp. 355-367.
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- [104] A. Ouda and H. Lutfiyya, “Understanding the Relationship Between High-Level Specification of Policies and Management Processes”, Accepted to appear as poster paper in the On-Line *Proceedings of HP Openview University Association 10th Plenary Workshop (HP-OVUA '03)*, Geneva, 2003.
- [105] G. Hu and H. Lutfiyya, “Using Policies to Manage a User’s Perception of Application Performance”, Accepted to appear in the On-Line *Proceedings of HP Openview University Association 10th Plenary Workshop (HP-OVUA '03)*, Geneva Switzerland, 10 pages.
- [106] W. Fouad and H. Lutfiyya, “Feedback Control for Multiple Servers”, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '03)*, June 2003, pp. 1469-1476.
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- [109] N. Muruganantha and H. Lutfiyya, “Issues in Policy Specification, Distribution and Architecture for Quality of Service Management”, *Proceedings of the Integrated Network Management (IM2003)*, March 2003, pp. 535-548.
- [110] M. Gittens, H. Lutfiyya, D. Godwin, M. Bauer, Y. Kim and P. Gupta, “An Empirical Evaluation of System and Regression Testing”, *Proceedings of the 12th Annual IBM Centre for Advanced Studies Conference (CASCON2002)*, October 2002, 314-325.
- [111] W. Song and H. Lutfiyya, “RSVP-Based QoS Control by Policy”, *Proceedings of the IEEE Global Telecommunications Conference 2002 (Globecom 2002)*, November 2002, pp. 1539-1543.
- [112] W. Kulju and H. Lutfiyya, “Design and Implementation of an Application Layer Protocol for Reducing UDP Traffic Based on User-Hints and Policies”,

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- [125] N. Vasiliou and H. Lutfiyya, “Providing a Differentiated Quality of Service in a World Wide Web Server”, Accepted to be presented in the *Proceedings of the Performance and Analysis of Web Servers* workshop, June 2000.
- [126] J. Andrews and H. Lutfiyya, “Experience Report: A Software Maintenance Project Course”, *Proceedings of the 13th Conference on Software Engineering Education and Training*, March 2000, pp. 132-139.
- [127] M. Katchabaw, H. Lutfiyya, and M. Bauer, “Using User Hints to Guide Resource Management for Quality of Service”, *Proceedings of the 1999 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1999)*, July 1999, pp. 1069-1075.
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- [140] M. Katchabaw, S. Howard, H. Lutfiyya, and M. Bauer, “Efficient Management Data Acquisition and Run-Time Control of DCE Applications Using the OSI Management Framework”, *Proceedings of the 2nd International IEEE Workshop on Systems Management*, June 1996, pp. 104-111.
- [141] C. Cowan and H. Lutfiyya, “A Wait-free Algorithm for Optimistic Programming: Hope Realized”, *Proceedings of the 16th International Conference on Distributed Computing Systems (ICDCS’96)*, May 1996, pp. 484-493.
- [142] H. Abdu and H. Lutfiyya, “Issues in Monitoring Optimisation”, *Proceedings of the ACM Symposium on Applied Computing*, February 1996, pp. 366-373.
- [143] G. Winters, Z. Zhu, M. Bauer, D. Muntz, T. Teorey, and H. Lutfiyya, “An Architecture for Monitoring and Modelling Network Systems”, *Proceedings of the 5th Annual IBM Centre for Advanced Studies Conference (CASCON95)*, November 1995, pp. 13-27.

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- [145] C. Cowan and H. Lutfiyya, “Formal Semantics of Optimism: The Meaning of Hope”, *Proceedings of the 14th Annual ACM Symposium on the Principles of Distributed Computing (PODC95)*, August 1995, pp. 164-173.
- [146] M. Bauer, H. Lutfiyya, J.W. Hong, D. Eager, P. Finnigan, P. Martin, T. Teorey, and V. Vetland, “MANDAS: Management of Distributed Applications and Systems”, *Proceedings of the 5th IEEE Computer Society Workshop on Future Trends of Distributed Computing Systems*, August 1995, pp. 200-206.
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- [149] G. Perrow, J. Hong, M. Bauer, and H. Lutfiyya, “The Abstraction and Modelling of Management Agents”, *Proceedings of the Fourth International Symposium on Integrated Network Management*, May 1995, pp. 466-478.
- [150] A. Pratten, J. Hong, M. Bauer, H. Lutfiyya, and J. Bennett, “A Resource Management System Based on the ODP Trader Concepts and X.500”, *Proceedings of the Fourth International Symposium on Integrated Network Management*, May 1995, pp. 118-130.
- [151] C. Cowan and H. Lutfiyya, “Optimistic Language Constructs”, *Presented at the 17th International Workshop on Software Engineering Workshop on Research Issues in the Intersection of Software Engineering and Programming Languages*, April 1995.
- [152] H. Lutfiyya, M. Bauer, M. Wei, and J. Hong, “Monitoring in Distributed Application Management”, *Proceedings of the Sixth IASTED - ISMM International Conference on Parallel and Distributed Computing Systems*, October 1994, pp. 17-21.
- [153] A. Pratten, J. Hong, J. Bennett, M. Bauer, and H. Lutfiyya, “A Trader-Based Resource Management System”, *Proceedings of the Fifth IFIP/IEEE International Workshop on Distributed Systems: Operations & Management*, October 1994 (no page numbers).

- [154] A. Pratten, J. Hong, J. Bennett, M. Bauer, and H. Lutfiyya, “Design and Implementation of a Trader-Based Resource Management System”, *Proceedings of the 4th Annual IBM Centre for Advanced Studies Conference (CASCON95)*, November 1995, pp. 130-141.
- [155] C. Cowan and H. Lutfiyya, “Enhancing Concurrency Through Optimism: A Reason for HOPE”, *Proceedings of the Twenty-first Annual ACM Computer Science Conference*, March 1994, pp. 218-225.
- [156] H. Lutfiyya, A. Su, and B. McMillin, “Formal Derivation of an Error-Detecting Distributed Data Scheduler”, *Proceedings of the International Conference on Formal Methods in Programming and Their Application*, 1993, pp. 363-376.
- [157] H. Lutfiyya and B. McMillin, “Formal Generation of Executable Assertions for Fault-Tolerant Parallel Bitonic Sort”, *Poster paper in the Proceedings of the 14th Annual International Conference on Software Engineering*, May 1992 (no page numbers).
- [158] H. Lutfiyya, A. Sun, and B. McMillin, “A Fault-Tolerant Branch and Bound Algorithm Derived from Program Verification”, *Proceedings of the 16th Annual International Computer Software and Applications Conference (COMPSAC92)*, September 1992, pp. 182-187.
- [159] H. Lutfiyya, B. McMillin, P. Poshyanonda, and C. Dagli, “Composite Stock Cutting using Simulated Annealing”, Accepted as a poster at *IEEE MAECON 1990*, 1990 (no page numbers).

### Invited Papers

- [160] H.L. Lutfiyya, “Using Policies for QoS Management”, In *1st International Workshop on Policies for Networks and Distributed Systems*, November 1999.
- [161] H. Lutfiyya, “Policy Management and Fault Location in Distributed Systems”, In *International Workshop on Network and Systems Management*, pp. 171–181, 1995.
- [162] H.L. Lutfiyya, “Issues in the Teaching of Formal Methods in Software Engineering”, In *National Workshop on Software Engineering Education*, 1993, 2 pages

### Invited Talks

- [1] Invitation to speak at a panel at Brazil 3.0 (turned down due to time constraints)
- [2] “The Edge”, In *Annual IBM Centre for Advanced Studies Conference (CASCON 2012)*, Toronto Ontario Canada, November 2012.

- [3] “Trust in Ultra-Large Systems”, Carleton University, Ottawa Ontario Canada, August 2012.
- [4] “Trust Computing”, Keynote talk at the EU Workshop on *Building Trust in Autonomic Networks*, December 3rd, 2010.
- [5] “Policies and Fault Diagnosis”, In *Annual IBM Centre for Advanced Studies Conference (CASCON 2010)*, Toronto Ontario Canada, October 2008.
- [6] “Automating the Mapping of Policies to Management Services”, In *Annual IBM Centre for Advanced Studies Conference (CASCON 2008)*, Toronto Ontario Canada, October 2008.
- [7] “Business Rules, Feedback and Trust”, HP Labs (Palo Alto), November 2007.
- [8] “Automated Provisioning Management Driven by Business Policies, Business Goals and Service Level Agreements” Workshop on Engineering of Autonomic Software Systems, In *Annual IBM Centre for Advanced Studies Conference (CASCON 2006)*, Toronto Ontario Canada, October 2006.
- [9] “Using Policies to Effectively Management Resources”. University of Saskatchewan, Saskatoon Saskatchewan Canada, December 2004.
- [10] “Using Policies for Quality of Service Management in Distributed Systems”. In *Annual IBM Centre for Advanced Studies Conference (CASCON2004)*, Toronto Ontario Canada, October 2004.
- [11] “Using Policies for Quality of Service Management in Distributed Systems”. Queens University, Kingston Ontario Canada, August 2004.
- [12] “Issues in Mobile Commerce and Quality of Service Management”. In *Annual IBM Centre for Advanced Studies Conference (CASCON2001)*, Toronto Ontario Canada, November 2001.
- [13] “Software Engineering Curriculum at the University of Western Ontario”. University of Toronto, Toronto Ontario Canada, May 2000.
- [14] “Managing QoS Requirements”. University of Toronto, December 1999.
- [15] “Issues in Managing QoS Requirements” *International Symposium on Electronic Commerce*, Beijing China, 1999.
- [16] “Policy-Driven Quality of Service Management for Electronic Commerce Applications”. In *Annual IBM Centre for Advanced Studies Conference (CASCON98)*, Toronto Ontario Canada, November 1998.
- [17] “Policy-Driven Quality of Service Management”. In *Mitel*, Ottawa Ontario Canada, November 1998.

- [18] “Quality of Service for Electronic Commerce Applications”. In *8th Annual IBM Centre for Advanced Studies Conference (CASCON98)*, Toronto Ontario Canada, November 1998.
- [19] “Distributed Applications Management”. In *A Celebration of Women in the Mathematical, Statistical and Computer Sciences*, University of Waterloo, Waterloo Ontario Canada, May 1998.
- [20] “A Model for Resource Management to Support QoS Policies”. In *IBM T.J. Watson*, White Plains NY USA, April 1998.
- [21] “Policy-Driven Management in Distributed Systems”. In *IBM T.J. Watson*, White Plains NY USA, October 1996.
- [22] “Current State of Management Research and What Needs to be Done”. In *2nd International IEEE Workshop on Systems Management*, Toronto Ontario Canada, June 1996.
- [23] “MACT:Automating Management Agent Development”. In *5th Annual IBM Centre for Advanced Studies Conference*, Toronto Ontario Canada, November 1995.
- [24] “Policy Management and Fault Location in Distributed Systems”. In *International Workshop on Network and Systems Management*, Korea, August 1995.
- [25] “MACT:Automating Management Agent Development”. In *7th IEEE International Workshop on Computer-Aided Software Engineering (CASE’95)*, Toronto Ontario Canada, June 1995.
- [26] “Modelling Applications for Management”. In *Bell-Northern Labs*, Ottawa Ontario Canada, October 1994.

## Supervision

### Research Associates/Postdocs

WangCheol Song	Systems Management	07/08-07/09 (Research Associate)
Vladimir Tasic	Web Services Management	09/04- 08/2005.
Tang Yazhe	Web Services Management	08/04-06/06 (Postdoc)
WangCheol Song	Systems Management	2/01-2/02 (Postdoc)
Andrew Marshall	Distributed Systems	1/96-1/98 (with M. Bauer)
Gary Molenkamp	Distributed Systems	1/98-5/01 (with M. Bauer)

## PhD Students Supervised

1. Chern Har Yew, "Architecture Supporting Computational Trust Formation", February 2011.
2. Bradley Simmons "Strategy-Trees: A Novel Approach to Policy-Based Management", February 2010 (Postdoc at York University).
3. Abdelnasser Ouda "Towards Automating Policy-Based Management Systems", September 2009 (Software Consultant).
4. Quefei Wang, "Weighted LRU Algorithm for CPU Cache", December 2006 (IBM Toronto).
5. Wael Fouad, "Using Control-Theoretic Techniques to Manage Computing Resources in a Data Centre", August, 2006 (postdoc at the University of Quebec-Montreal).
6. Mechelle Gittens, "The Extended Operational Profile Model for Usage-Based Software Testing", 2004, (Initially lecturer at the University of Waterloo; Postdoc at the IBM Toronto Software Laboratory <sup>1</sup>).
7. Michael Katchabaw, "Quality of Service Management", co-supervised with M. Bauer, 2002 (at the University of Western Ontario as an assistant professor).
8. Hasina Abdu – "Optimising Monitoring Configurations in Distributed Systems", 1999 (at the University of Michigan–Dearborn as an assistant professor).
9. Douglas Williams – "Fault-Tolerant Authentication Services", 1999 (at MITRE as Senior Scientist in the Advanced Security Section of the Secure Distributed Computing Department).
10. Crispin Cowan, "HOPE: Language Constructs for Optimism", co-supervised by Professor M. Bauer, 1995 (at Oregon Graduate Institute (OGI) as Research Professor).

## Current PhD Students Supervision

1. Navid Bayat
2. Gaston Keller
3. Azade Khalaj
4. Karthick Ramachandran

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<sup>1</sup>This refers to where the student first went after completing their degree

## MSc Students Supervised

1. Walee Al Mamun, "A Policy Based Failure Detection Mechanism in Manet", January 2012, (Software developer at CISCO)
2. Hamza Ghandorh, "Mapping BPEL Processes to Diagnostic Models", December 2011, (PhD student in the Department of Electrical and Computer Engineering at Western)
3. Md. Sakibul Hassan, "Policies for Web Services", April 2011 (Software developer at IT Strategic)
4. Irina Kalugina, "An Optimization Approach to Query Business Processes", April 2010, (IT Analyst for Ford Motor Company)
5. Nathan Lemieux, "Hybrid Indoor Positioning Systems", September 2009, (HP)
6. Gaston Keller, "Replication and Migration as Resource Management Mechanisms for Virtualized Environments", August 2009, (PhD student in Computer Science at Western)
7. Ali Bou Nassif, "Metrics to Implement Cumulative Licensing for Software as a Service Application", July 2009, (PhD student in the Department of Electrical and Computer Engineering at Western)
8. Karthick Ramachandran, "Decentralized Resource Availability Prediction in Peer-to-Peer Desktop Grids", May 2009, (PhD student in Computer Science at Western)
9. Janette Wong, "Dynamic Balancing of Resources in Derby Database", May 2008 (IBM).
10. Shayne Burgess, "Log File Analysis for Software Fault Localization", April 2008 (Microsoft).
11. Angela McCloskey, "Optimizing Resource Management in Data Centers Through the Specification and Application of Service Level Agreements and Policies", November 2007, (Merck and Co., Inc).
12. Dan Siemon, "The IP Per Process Model: Bringing End-to-end Network Connectivity to Applications", September 2007 (Sandvine).
13. Micah Gazilia, "Improving Efficiency on Performance of Distributed File-Systems", August 2006 (Consultant for an Australian company).
14. Chen He, "Software License Management System", April 2006 (Directed Study).
15. Haofan Liu, "The Web Services Based Cyber Foraging Architecture", February 2006.



16. Sean Norman, "Grid Computing: A GRID Application Deployment System", August 2005.
17. Shashank Garg, "Application of Mathematical Modeling to Manage Service Level Agreements Subject to Policies", August 2005 (Accepted to medical school).
18. Steve Cuddy, "Enhancing Service Discovery Protocols", September 2004 (Ivey Business School at UWO).
19. Mark Paciga, "Herecast: An Open Infrastructure for Location-Based Services using Wi-Fi", June 2004 (Project), (Amazon.com).
20. Jerome Peng, "Site Survey and Positioning Calibration for Use with Eahau Positioning Engine on the Wireless Network in Middlesex College", May 2004 (Directed Study).
21. Chern Har Yew, "Support for Context-Aware Computing", September 2004 (PhD student at UWO).
22. Gang Hu, "Differentiated QoS Management in Distributed Environments", May 2003 (IT company in China).
23. Brad Simmons, "Design of a Quality of Service Management Framework Capable of Automated Adjustment of Service Level Agreements Based on Application Level Feedback", Sept 2003 (PhD student at UWO).
24. Haitong Xu, "Providing Differentiated Quality of Service in a Cluster-based Web Server for E-Commerce", 2002 (PhD student at UWO).
25. Sandra Taylor, "Prediction of QoS Requirement Violations", September 2002.
26. Muruganantha Nadesapillai, "Deployment of Policies in Policy-Driven QoS Management Frameworks for Distributed Applications", September 2002 (Alcatel).
27. Nikolas Vasiliou, "Differentiated Services for Web Server", May 2000 (at a start-up).
28. Laurentiu Spearzman, "Real-Time Dutch and Japanese Electronic Auctions", May 2000 (unknown).
29. Gary Molenkamp, "Quality of Service Violation Detection and Location in Distributed Systems", September 2000 (System Administrator for Sharcnet ).
30. Andrew Choi "Adaptive Web Content based on Client Computing Resources", September 2000 (Alcatel).
31. William Kulju, "Adaptive Protocols", September 2000 (IBM Toronto Software Laboratory).

32. Seema Kaushal, “Algorithms for Automating Instrumentation in Distributed Applications”, 1999 (Motorola).
33. Edmund Daniels, “Reconfiguration algorithms for Distributed Applications”, August 1999 (3M).
34. Ike Kent, “Distributed Schemes for Fault Location”, April 1998 (Redback).
35. Jason Zhong, “Security Architecture for Application Management”, 1998 (IT company in the US).
36. Ron Versteegh, “Support for Distributed Systems Management Application Development”, October 1997 (went to start-up doing on-line grocery shopping in Georgia)
37. Dawn Richardson, “Policy Specification for Management of Distributed Systems”, August 1996.
38. Cam Turner, “Fault Location in Distributed Systems”, 1995 (Nortel).
39. Ann Welch, “An Information Model for Configuration Management”, 1995 (Canada Trust).
40. David Stokes , “Availability and Performance Management in Distributed Systems”, 1995 (IBM Toronto Software Laboratory).
41. Han-Sung Kim, “Modelling of Management Agents”, 1995 (Korean Army at rank of Captain).
42. Min Wei, “Monitoring in Distributed Systems”, co-supervised with Dr. M. Bauer, 1993 (company in Ottawa).

### **Current MSc Students Supervision**

1. Graham Foster
2. Arash Tajalli-Yazdi
3. Xutong Zhu

### **Thesis Committee Work**

#### MSc Thesis Committee Work

1. Internal MSc Reader for Andres Ayala Garcia, Department of Computer Computer Science, University of Western Ontario, September 2012, (“Interactive Augmented Reality as a Support Tool for Parkinson’s Disease Rehabilitation Programs”), Supervisor Dr. M. Katchabaw.

2. External MSc Reader for Abdulfattah Noorwali, Department of Electrical and Computer Engineering, University of Western Ontario, August 2012, (“Performance Analysis of Channel-Aware Media Access Control Schemes”), Supervisor Dr. A. Shami.
3. Internal MSc Reader for Anahita Bigvand, Department of Computer Science, University of Western Ontario, December 2010, (“A Fast Algorithm for Computing Highly Sensitive Multiple Spaced Seeds”), Supervisor Dr. L. Ilie.
4. Internal MSc Reader for Liyun Li, Department of Computer Science, University of Western Ontario, August 2010, (“Efficient Evaluation of Large Polynomials”) Supervisor: Dr. M. Maza
5. External MSc Reader for Tomasz Rybak, Department of Electrical and Computer Engineering, University of Western Ontario, May 2010, (“Implementation of a Triple-Play TDMA Protocol - SDR Application”), Supervisor Dr. A. Shami.
6. Internal MSc Reader for Afroza Rahman, Department of Computer Science, University of Western Ontario, December 2009, (“Simulation and Analysis of Ciliate Computing Models”), Supervisor Dr. L. Kari.
7. External MSc Reader for Weilin Du, Department of Electrical and Computer Engineering, “A Neuro-Fuzzy Model with SEER-SEM for Software Effort Estimation”, University of Western Ontario, December 2009 (Supervisor Dr. L. Capretz).
8. External MSc Reader for Hao Li, Department of Electrical and Computer Engineering, University of Western Ontario, November 2009, “OFDM-based Cognitive Radio Spectrum Sensing and Prototype Development”, University of Western Ontario, November 2009 (Supervisor Dr. X. Wang).
9. Internal MSc Reader for Jiaming You, Department of Computer Science, University of Western Ontario, April 2009, “Comprehensive Believable Non Player Characters Creation and Management Tools for Emergent Gameplay”, Supervisor Dr. M. Katchabaw
10. Internal MSc Reader for Amit Regmi, Department of Computer Science, University of Western Ontario, January 2009, “Supporting Multimodal Collaboration with Digital Ink and Audio”, Supervisor Dr. S. Watt
11. External MSc Reader for Dan Dehene, Department of Electrical and Computer Engineering, University of Western Ontario, April 2007, (“Design of Media Access Control Schemes for Performance Enhancement of Future Generation Wireless Systems”), Supervisor Dr. A. Shami.

12. Internal MSc Reader for Jinghao Zhang, Department of Computer Science, University of Western Ontario, December 2007, (“Reflection in Meta: The Meta-Object Protocol”), Supervisor Dr. W. Holst.
13. Internal MSc Reader for Michael Lloyd, Department of Computer Science, University of Western Ontario, November 2007, (“Aldor Generics in Software Component Architectures”), Supervisor Dr. S. Watt.
14. External MSc Reader for Behrang Shivaee, Department of Electrical and Computer Engineering, University of Western Ontario, September 2006 (“QoS for Optical Networks”), Supervisor Dr. A. Shami.
15. Internal MSc Reader for Trevor Maynard, Department of Computer Science, University of Western Ontario, Department of Computer Science, University of Western Ontario, July 2006, (“Distilling Rhetorical Information from Scholarly Biomedical Literature”), Supervisor Dr. R. Mercer.
16. Internal MSc Reader for Daniel P. Santoni, Department of Computer Science, University of Western Ontario, July 2006, (“Resource Matching in a Peer-to-Peer Computational Framework”), Supervisor Dr. M. Katchabaw.
17. Internal MSc Reader for Anne Marie Schenk, Department of Computer Science, University of Western Ontario, May 2006 (“Application and Evaluation of Interaction Techniques to 3D Mathematical Structures”), Supervisor Dr. K. Sedig.
18. Internal MSc Reader for Yunyu Song, Department of Computer Science, University of Western Ontario, April 2006 (“Conflict of Interest in the Administrative Role Graph Model”), Supervisor Dr. S. Osborn.
19. External MSc Reader for Yue Cheng, Department of Electrical and Computer Engineering, The University of Western Ontario, April 2006 (“Performance of MIMO-OFDM Systems Over Wireless Channels”), Supervisor Dr. R. Rao.
20. Internal MSc Reader for Xin Li, Department of Computer Science, University of Western Ontario, May 2005, (“An Exploration of Component-Oriented Programming Support for Meta”), Supervisor Dr. W. Holst.
21. Internal MSc Reader for Daniel Reid, Department of Computer Science, University of Western Ontario, May 2005, (“SCAR: Stateless Architecture for Achieving Scalable QoS”), Supervisor Dr. M. Katchabaw.
22. External MSc Reader for Xiaofeng Bai, Department of Electrical and Computer Engineering, University of Western Ontario, April 2005 (“Design and Analysis of Ethernet Passive Optical Networks”), Supervisor Dr. A. Shami.

23. Internal MSc Reader for Zaky Adam, Department of Computer Science, University of Western Ontario, July 2004 (“Evaluating the Effect of Taxon Sampling on the Stability of Phylogenetic Trees”), Supervisor Dr. L. Kari.
24. Internal MSc Reader for Yongshing Yin, Department of Computer Science, University of Western Ontario, June 2004 (“XML-Based Language Neutral Aspect Code Weaving”), Supervisor Dr. W. Holst.
25. External MSc Reader for Hani Amine, Department of Electrical and Computer Engineering, University of Western Ontario, April 2004 (“Teleoperation”), Supervisor Dr. Roy Eagleson.
26. Internal MSc Reader for Sonja Rowhani, Department of Computer Science, University of Western Ontario, September 2003 (“Designing Mathematical Mindtools: An Empirical Investigation”), Supervisor Dr. K. Sedig
27. Internal MSc Reader for George Yao, Department of Computer Science, University of Western Ontario, September 2003 (“Information Retrieval and Web Search Engine Improvements”), Supervisor Dr. R. Solis-Oba
28. External MSc Reader for Muhammed, Department of Electrical and Computer Engineering, University of Western Ontario, September 2003, (“Multi-Carrier CDMA using OFDM-CPM for Wireless Communications”), Supervisor Dr. R. Rao.
29. Internal MSc Reader for Raphael Bahati, Department of Computer Science, University of Western Ontario, May 2003 (“Policy-Driven Quality of Service Management System for Multimedia Applications”), Supervisor Dr. M. Bauer.
30. External MSc Reader for Duange Jacques Department of Electrical and Computer Engineering, University of Western Ontario, January 2003, Supervisor Dr. S. Primak.
31. External MSc Reader for Joseph Eze, Department of Electrical and Computer Engineering, University of Western Ontario, January 2003, Supervisor Dr. H. Ghenniwa.
32. Internal MSc Reader for Fuji Zhang, Department of Computer Science, University of Western Ontario, January 2003 (“A New Software Development Architecture based on Mobile Components”), Supervisor Professor Mark Perry.
33. Internal MSc Reader for Yuan Xue, 2002 (“Fault Detection and Simulation in Combinational Circuits Using the D- Algorithm”), Supervisor Dr. H. Jurgensen.
34. Internal MSc Reader for Jun Liu, Department of Computer Science, University of Western Ontario, 2002 (“Simulating Role Graph Model on Linux” ), Supervisor Dr. S. Osborn.

35. Internal MSc Reader for Wayne Wilson, Department of Computer Science, University of Western Ontario, 2001 (“K-Lattice world (KLW): A Tool to Explore Interactive Representations of Lattice Patterns”), Supervisors: Dr. K. Sedig and Dr. R. Mercer
36. Internal MSc Reader for Shirley Xu, Department of Computer Science, University of Western Ontario (Project), 2000 (“Workflow Management Using Internet Technology”), Supervisor Dr. M. Bauer.
37. Internal MSc Reader for Gang Li, Department of Computer Science, University of Western Ontario (Project), 2000 (“A Unified Definition For Component-Based Development”), Supervisor Dr. S. Yu.
38. Internal MSc Reader for Wenxia Jiang, Department of Computer Science, University of Western Ontario, 2000 (“New Constructs for Component-Based Modeling and Design”), Supervisor Dr. S. Yu.
39. Internal MSc Reader for Bill Mclean, Department of Computer Science, University of Western Ontario, June 1998 (“Distributed Application Management with Extensible Agents”), Supervisor Dr M. Bauer.
40. Internal MSc Reader for Joel Troster , Department of Computer Science, University of Western Ontario, Feb. 1998 (“A Platform for Exploratory Analysis of Software Metrics”), Supervisor Dr. M. Bauer.
41. Internal MSc examiner for Mechelle Gittens , Department of Computer Science, University of Western Ontario, April 1997 (“Extending the Constructive Cost Model Through Empirical Defect Modelling”), Supervisor Dr. M. Bennett.
42. Internal MSc examiner for Sanda Chirila , Department of Computer Science, University of Western Ontario, April 1997 (“Role-Based Security in O2”), Supervisor Dr. S. Osborn.
43. Internal MSc examiner for Meeta Khurana, Department of Computer Science, University of Western Ontario, Sept. 1996 (“Computing Optical Flow for Large Image Motions Using Differential Techniques and Hierarchical Decomposition”), Supervisor Dr. J. Barron.
44. Internal MSc examiner for Julian Ye, Department of Computer Science, University of Western Ontario, May 1996 (“An Empirical Study of Testing Large-Scale Commercial Software”), Supervisor Dr. M. Bauer.
45. Internal MSc examiner for Michael Esch, Department of Computer Science, University of Western Ontario, March 1996 (“Extensions to the Linux Kernel”), Supervisor Dr. M. Bauer.

46. Internal MSc examiner for John MacAuley, Department of Computer Science, University of Western Ontario, Jan. 1996 (“Access and Compression Methods for X.500 Distributed Directory ”), Supervisor Dr. M. Bauer.
47. Internal MSc examiner for Laura Reid, Department of Computer Science, University of Western Ontario, Sept. 1995 (“Using Roles to Represent Security in SQL”), Supervisor Dr. S. Osborn.
48. Internal MSc examiner for Philip Surette, Department of Computer Science, University of Western Ontario, Oct. 1994 (“A Unified Treatment of the Syntactic, Semantic and Presuppositional Aspects of English Sentences”), Supervisor Dr. R. Mercer.
49. Internal MSc examiner for Peter Scheyen, Department of Computer Science, University of Western Ontario, May 1994 (“Constructs for Generic Functions of Classes in C++”), Supervisor Dr. S. Yu.
50. Internal MSc examiner for Warren Pratten, Department of Computer Science, University of Western Ontario, May 1994 (“Resource Management in a Distributed Environment”), Supervisor Dr. M. Bennett.
51. Internal MSc examiner for Jay Parry, Department of Computer Science, University of Western Ontario, May 1994 (“Algorithms to Calculate Weights for the Nearest Neighbor Problem”), Supervisor Dr. C. Ling.
52. Internal MSc examiner for Maria Bukowska, Department of Computer Science, University of Western Ontario, March 1994 (“Simulation of Concurrency Control in Multidatabase Systems”), Supervisor Dr. J. Mullin.
53. Internal MSc examiner for Samir Tout, Department of Computer Science, University of Western Ontario, Sept. 1993 (“Image Compression Using Linear Prediction”), Supervisor Dr. K. Zhang.
54. Internal MSc examiner for Yvan Cazabon, Department of Computer Science, University of Western Ontario, Sept. 1993 (“Dependency Cost: A Policy Independent Metric for Process Selection”), Supervisor Dr. M. Bauer.

#### Internal PhD Thesis Committee Work

1. PhD Reader for Shaimaa Ali, Department of Computer Science, University of Western Ontario, August 2012, (“Localizing State-Dependent Faults Using Associated Sequence Mining”), Supervisor Dr. J. Andrews.
2. PhD Reader for Mehran Mozaffari-Kermani, Department of Electrical and Computer Engineering, University of Western Ontario, June 2011, “Reliable and High-Performance Hardware Architectures for the Advanced Encryption Standard/Galois Counter Mode”, Supervisor Dr. A. Shami.

3. PhD Reader for Mehran Kermani, Department of Electrical and Computer Engineering, University of Western Ontario, June 2011, “Reliable and High-Performance Hardware Architectures for the Advanced Encryption Standard/Galois Counter Mode”, Supervisor Dr. A. Reyhani-Masoleh.
4. PhD Reader for Khalim Meerja, Department of Electrical and Computer Engineering, University of Western Ontario, July 2010, “Design and Analysis of Wireless Media Access Protocols”, Supervisor Dr. A. Shami.
5. Internal PhD Reader for Hai-Ning Liang, Department of Computer Science, University of Western Ontario, February 2009, (“Interaction Design and Visual Cognitive Tools: Enabling Effective Human-Information Interaction”), Supervisor: Dr. K. Sedig.
6. PhD reader for Xiaofeng Bai, Department of Electrical and Computer Engineering, University of Western Ontario, January 2009, (“Quality-of-Service and Performance Optimization in Broadband Wireless Access Networks - A Cross-layer Study”), Supervisor Dr. A. Shami.
7. Internal PhD Reader for Siami Namin Akbar, Department of Computer Science, University of Western Ontario, August 2008, (“Mutation Analysis in Software Testing”), Supervisor: Dr. J. Andrews.
8. Internal PhD Reader for Yuzhen Xie, Department of Computer Science, University of Western Ontario, September 2007 (“Fast Algorithms, Modular Methods, Parallel Approaches and Software Engineering for Solving Polynomial Systems Symbolically”), Supervisor: Dr. M. Maza.
9. Internal PhD Reader for Qian Zhao, Department of Computer Science, University of Western Ontario, May 2007, (“SmArt Architecture: Semantic Agreement Aware Management of Services”), Supervisor: Prof. M. Perry.
10. Internal PhD Reader for Cosmin Oancea, Department of Computer Science, University of Western Ontario, November 2005 (“Parametric Polymorphism for Software Component Architectures”), Supervisor Dr. S. Watt.
11. Internal PhD Reader for Mark Eramian, Department of Computer Science, University of Western Ontario, September 2002 (“Finite State Automata for Texture Analysis of Images”), Supervisor Dr. H. Jurgenson.
12. Internal PhD Reader for Yannis Chicha, Department of Computer Science, University of Western Ontario, August 2002 (“Distributed Garbage Collecting”), Supervisor Dr. S. Watt.
13. Internal PhD Reader for Andrew Marshall, Department of Computer Science, University of Western Ontario, March 2000 (“Template-Assisted Program Restructuring with Application to Communications Infrastructure Evolution”), Supervisor Dr. M. Bauer.



14. Internal PhD Reader for Stephen Howard, Department of Computer Science, University of Western Ontario, October 1999 (“Policy-Driven Management for Object-Oriented Systems”), Supervisor Dr. M. Bauer.
15. Internal PhD examiner for Q. Zhuang, Department of Computer Science, University of Western Ontario, Dec. 1995 (“Algorithmic Abstraction in Object-Oriented Languages”), Supervisor Dr. S. Yu.

#### External PhD Thesis Committee Work

1. External PhD examiner for Yang Cao, School of Computer Science, Carleton University, August 2012, (“Message Processing on XML-based Publish/Subscribe Systems”), Supervisors: Shikharesh Majumdar, Chung-Horng Lung
2. External PhD examiner for Nicholas Boers, Department of Computer Science, University of Alberta, June 2011, “Wireless Sensor Network Development for Urban Environments”, Supervisors: Ioanis Nikolaidis, Pawel Gburzynski
3. External PhD examiner for Farhana Zulkernine, Department of Computer Science, Queen’s University, April 2009, “Autonomic Process Management Using the Comprehensive Service Management Middleware”, Supervisor: Dr. Pat Martin.
4. External PhD examiner for Rajesh Karunamurthy, Department of Electrical and Computer Engineering, Concordia University, January 2009, “Web Service Composition: Architecture, Frameworks and Techniques”, Supervisor: Dr. Ferhat Khendek.
5. External PhD examiner for David Kidson, Department of Systems and Computer Engineering, Carleton University, August 2008, (“Policy-Enabled Traffic Engineering in Maritime Tactical Networks”), Supervisor: Dr. Thomas Kunz.
6. External PhD examiner for Abdelkarim Erradi, Department of Computer Science, University of New South Wales, April 2008, (“Policy-Driven Middleware for Manageable and Adaptive Service-Oriented Processes”) Supervisor Dr. P. Maheshwari.
7. External PhD examiner for Ali Roumani, Department of Computer Science, Queen’s University, January 2006, (“The Nearest-Neighbour Problem in High-Dimensional Applications”), Supervisor Dr. D. Skillicorn.
8. External PhD examiner for Wenguang Wang, Department of Computer Science, University of Saskatchewan, December 2004, (“Storage Management for Large-Scale Systems”), Supervisor Dr. Richard Bunt.
9. External PhD examiner for Ayse Karaman, Department of Computer Science, Queen’s University, August 2004, (“QoS-Routing for Group Communications”), Supervisor Dr. H. Hassanein.

10. External PhD examiner for Mohamed El-Dariby, Department of Systems and Computer Engineering, Carleton University, May 2004, (“Scalable Network Control”), Supervisors: Dr. Dorina Petriu and Dr. Jerome Rolia.

## **Referee Service**

This includes a number of conferences, journals and grant proposals

## **Program Committees and Workshop Organization**

1. Program Committee Member, First IFIP/IEEE International Workshop on Formal Approaches to Managing Evolving Systems (FAMES 2013)
2. Program Committee Member, The IFIP/IEEE International Symposium on Integrated Management (IM 2013, IM 2011, IM 2009, IM 2005).
3. Program Committee Member, IEEE/IFIP Asian Pacific Network Operations and Management Symposium (APNOMS 2012, APNOMS 2011, APNOMS 2010, APNOMS 2009, APNOMS 2008)
4. Program Committee Member, Autonomous Infrastructure, Management and Security, (AIMS 2013, AIMS 2012, AIMS 2010, AIMS 2009, AIMS 2008).
5. Program Committee Member, ACM 8th International on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2013)
6. Program Committee Member, IEEE International Conference on Communications (ICC 2013)
7. Program Committee Member, GLocal Communication Conference (Globecom 2013)
8. Program Committee Member, International Conference on Information Networking 2013 (ICOIN 2013)
9. Program Committee Member, Security Track at the ACM Symposium on Applied Computing, 2013.
10. Program Committee Member, IBM Centre for Advanced Studies Conference (CASCON 2012, CASCON 2010, CASCON 2009, CASCON 2008).
11. Program Committee Member, IEEE Latin American Conference on Cloud Computing and Communications (LATINCLOUD 2012)
12. Program Committee Member, Wireless Days 2012

13. Program Committee Member, IEEE/IFIP LATIN American Network Operations and Management Symposium (LANOMS 2011, LANOMS 2009, LANOMS 2007)
14. Program Committee Member, IEEE Conference on Services and Network Management (CNSM 2012 CNSM 2011).
15. Program Committee Member, 4th International Workshop on Principles of Engineering Service-Oriented Systems (PESOS 2012,PESOS 2011, PESOS 2010)
16. Program Committee Member, IEEE International Conference on Communications – Communication Software, Services and Multimedia Applications Symposium Track (ICC CSSMA) 2011.
17. Program Technical Co-Chair IEEE Conference on Services and Network Management, 2010.
18. Program Committee Member, Annual International Computer Software and Applications Conference (COMPSAC 2012, 2011)
19. Program Committee Member, IEEE International Workshop on Business-Driven IT Management (BDIM 2012, BDIM 2011, BDIM 2010, BDIM 2009, BDIM 2008).
20. Program Committee Member, IEEE/IFIP Network Operations and Management Symposium (NOMS 2012, NOMS 2010, NOMS 2008, NOMS 2006, NOMS 2004)
21. Program Committee Member, GLobal Communication Conference (Globecom 2009)
22. Program Committee Member, The 5th International Workshop on Middleware for Web Services (MWS 2009).
23. Program Committee Member, ICSE Workshop on System Development in SOA Environments (SDSOA 2008, SDSOA 2007).
24. Program Committee Member, ACM Symposium on Computer Human Interaction for Management of IT, 2008, 2007.
25. Program Committee Member, Workshop on Middleware for Web Services (MWS) held in conjunction with IEEE International Enterprise Computing Conference (EDOC 2008, EDOC 2007, EDOC 2006,EDOC 2005).
26. Program Committee Member, The Fourth International Conference on Automatic and Autonomous Systems (ICAS 2008).

27. Program Committee Member, The Third Advanced International Conference on Telecommunications (AICT 2008, 2007).
28. Program Committee Member, Fourth International Workshop on Engineering Autonomic Software Systems (EASS 2007), associated with CASCON 2007.
29. Program Committee Member, Workshop on Seamless Service Mobility (SSMO 2007), co-located with the First IEEE Global Information Infrastructure Symposium (GIIS 2007).
30. Program Committee Member, IEEE 20th International Symposium on High Performance Computing Symposium (HPCS 2007).
31. Program Committee Member, International Conference on Networks and Systems Communications, Workshop on Policy-Based Systems.
32. Conference Chair, 2006 IEEE Workshop on Policies for Networks and Distributed Systems.
33. Program Committee Member, IEEE International Enterprise Computing Conference (EDOC 2006).
34. Program Committee Member, International Conference for Internet Technology and Secured Transactions 2006 (ICITST-2006)
35. Program Committee Member, Advanced Industrial Conference on Telecommunications (A-ICT 2005).
36. Program Committee Member, IEEE Workshop on Policies for Networks and Distributed Systems (Policy 2007, Policy 2006, Policy 2005, Policy 2004, Policy 2003, Policy 2002).
37. Program Committee Member, Latin American Network Operations and Management Symposium (LANOMS 2005), Porto Alegre, Brazil.
38. Chair, Workshop on Management in Mobile Computing, Associated with the The 2005 IFIP/IEEE International Symposium on Integrated Management (IM 2005).
39. Guest Editor (with Hossam Hassanein), Special Issue on End-to-End Service Differentiation, Journal on Computer Communications.
40. Program Co-Chair, IBM Centre for Advanced Studies Conference (CASCON 2004).
41. Program Committee Member, The IFIP/IEEE International Symposium on Integrated Management (IM 2005, IM 2003).

42. Program Committee Member, IFIP/IEEE International Workshop on Distributed Systems: Operations and Management (DSOM 2007, DSOM 2005, DSOM 2004, DSOM 2003, DSOM 2002, DSOM 2001).
43. Program Committee Member, IEEE International Conference on Management of Multimedia Networks and Services (MMNS 2007, MMNS 2006, MMNS 2005, MMNS 2004, MMNS 2003, MMNS 2002).
44. Co-Chair, Workshop on End-to-End Differentiated Service (EESD 2004, EESD 2003 EESD 2002).
45. Workshop Organizer (with Mark Perry), IBM Centre for Advanced Studies Conference (CASCON 2003), Workshop on Policies and SLAs.
46. Program Committee Member, Annual IBM Centre for Advanced Studies Conference (CASCON 2005, CASCON 2003, CASCON 2001, CASCON 2000).
47. Conference Chair, 2003 IEEE Workshop on Policies for Networks and Distributed Systems.
48. Program Committee Member, Third International Symposium on Electronic Commerce (ISEC-02).
49. Co-Chair, International Symposium on Electronic Commerce (ISEC2001) Workshop on Quality of Service and Performance (with G. Bochmann).
50. Program Committee Member, International Workshop on Internet Computing (2001, 2000).
51. Session Organizer, 3rd International Workshop on Electronic Commerce, session on Quality of Service for Electronic Commerce Applications (2000).
52. Workshop Organizer, IBM Centre for Advanced Studies Conference (CASCON 1999), Workshop on Quality of Service (QoS) Management.
53. Program Vice Chair, Workshop in Systems Management (1998).

## Teaching

### Undergraduate Teaching

#### Instruction

1. **CS026: Computer Fundamentals I** – This is an introduction to computer programming course. The teaching of this course is innovative with its emphasis on “programming with a purpose”.

2. **CS402: Parallel and Distributed Systems** – In the Spring term of 1995-1996, due to the lack of faculty in the Computer Science department able to teach this course, I volunteered to teach this course. This was on top of my regular teaching load. This is an introductory course in distributed systems. I have taught it since the Spring term of 2002-2003 where I revamped the course.
3. **CS434: Topics in Application Management** – This is an undergraduate course in application management. The use of Tivoli software was introduced in this this course. This was taught in Fall, 2001.
4. **CS490: Honor Thesis** – I coordinated this course in the academic year of 2000-2001.
5. **CS470: Software Maintenance and Configuration** – This is an undergraduate course of maintenance. I taught this course in the academic year of 2000-2001 and in the academic year 1998-1999 (with Jamie Andrews).
6. **CS471: Software Design and Architecture** – This is an undergraduate course on design patterns and architectures. I taught this course in Spring, 1998 and Spring, 1999.
7. **CS201: Algorithms, Data Structures and Software Engineering** – I taught this full course with D. Vance in the school years 1995-1996, 1996-1997, 1997-1998. My primary responsibilities included the software engineering material and the management of the class project.
8. **CS307: Software Engineering I** – This course emphasises design methodologies with the focus on object-oriented design and analysis. It represents a revamping of the old CS307. I taught this course with S. Yu in the school year 1996-1997.
9. **CS307: Software Specification** – In its previous form, this was an undergraduate course on the specification of software systems. Topics included logical properties, resource constraints, external interfaces and validation. I taught this course in 1994, 1995 and 1996.
10. **CS342: Introduction to Programming Languages** – This is an undergraduate course on the specification and analysis of programming languages. This course was taught in Fall, 1994.
11. **CS390: Industrial Internship** – This is an undergraduate course that allows a student to report on their internship experience. The students are required to write a paper and present the paper. The only lectures are the student presentations. I supervised this course in 1995, 1996 and 1997. This course was on top of my regular teaching load.

## Details of Curriculum Development and Course Design

1. I revamped CS 305 so that the students gain actual experience with an operating system.
2. In 2002, I examined the curriculum for CS305 (Operating Systems), CS357 (Networking I), CS457 (Networking II) and CS402 (Distributed Systems). Based on this examination, I designed new outlines for CS357, CS457 and CS402. In 2003, based on these outlines, a new version of CS357, CS 457 and CS402 were developed and deployed.
3. I worked to see that a special topics course on electronic commerce was offered in the Fall of 2001. This was cross-listed as an undergraduate and graduate course.
4. I took a leading role in developing the Software Engineering specialisation program in Computer Science. I am one of the authors of the report titled *Software Engineering Undergraduate Programs* with M. Bauer, R. Eagleson, J. LoVetri, Y. Quintana and D. Vancise that was submitted and approved by the ad-hoc committee on Software Engineering Undergraduate Programs. This report proposes a software engineering specialisation for two degree programs: Computer Science and Electrical Engineering. The report proposed six new courses. I wrote the calendar descriptions of these courses as well as developed the course outlines for five of the courses.
5. I sat on the Software Engineering Curriculum Committee (in the 1998/1999 academic year) for the Department of Electrical and Computer Engineering. I helped rewrite the draft software engineering curriculum for their program.
6. I supervised two students (Piotr Masteg and Bogdan Skwarko) in 1997/1998 in a preliminary version of a course (CS470) that was offered officially for the first time in the academic year 1998/1999 (with Jamie Andrews). For these students, this course was taken as CS490.
7. Jamie Andrews and I officially offered the course CS470 for the first time. We wrote a paper titled "Experience Report: A Software Project Management Course" that appeared in the 13th Conference on Software Engineering Education and Training" (April 1999). This paper focussed on one course, but we had to explain our software engineering program so that the context of the course being described was clear. This description and the experience with the course led to the paper being one of the very few papers of the conference selected to appear in the IEEE Transactions on Education (November 2000). This reflects that the software engineering community believes that we have a program and courses in software engineering that are innovative and should be shared with the academic community.

8. I developed and taught the course, **CS471: Software Design and Architecture**, which was taught for the first time, in the academic year 1997/1998 (it was numbered CS407). It is the first course of its kind to be offered in Canada.
9. Sheng Yu and I introduced object-oriented design and analysis into the curriculum through CS307. I later (in the 1997/1998 academic year) introduced the material in a second year course.
10. I introduced acceptance testing of projects to CS201 and CS307. This is an important concept from industry related to software reliability.

In October 1996, I attended a software reliability conference. In a discussion with a colleague from Microsoft, I ended up describing what I was doing in the software engineering courses. He was surprised with the project-orientation and testing aspects of these courses. When he returned from his trip, he made arrangements to have Microsoft interview at UWO. This was the first time that Microsoft interviewed at UWO. As a result, Microsoft hired three UWO Computer Science students and sponsored a career fair in October, 1997 so that they may attract more students.

## **Supervision**

### **3rd-Year Bsc Students in CS380y**

1. Chris Snow, "Performance of TCP/IP over Bluetooth", 2002.
2. Shalom Levytam, "Flash vs. HTML", 2002.
3. Jonathan Bennett, "Real-Time Visualisation", 1997.

### **4th-Year Bsc Students (Honors) in CS490y**

1. Chirag Mistry, "Developing iWestern App for Android", 2011
2. Alexander Pokluda, "Managing Dynamic Memory Allocations in Cloud through Golondrina", 2010
3. Jonathan Leaver, "Location-Aware Applications", 2009.
4. Shaun Phillips, "Development of Indoor-Location System Using Bluetooth Devices and Wireless Access Points", 2007.
5. Angela McCloskey, "Development of a Client-Server Interface for the Ekahau Positioning Software", 2005.
6. Dan Siemon, "Linux Based Network QoS Management", 2005.
7. John Fraster, "Web-Based Website Traffic Analysis Service", 2004.



8. David Hetesi and Nathan Lemieux, “Wireless Location Finder”, 2004.
9. Remo Ferrari, “Policy Based Switch Experimentation”, 2003.
10. Ikhlās Abdulsaid, “Development of an E-commerce Application”, 2002.
11. Mark Paciga, “Information Retrieval via Email for Wireless Devices”, 2002.
12. Trevor Timbeck, “A Jini Framework for Distributed Load Generation”, 2000.
13. Andy Warfield, “Instrumenting Java for Performance Improvement”, 1999.
14. Mark Aning and Desmond Leung, “Developing Virtual Mall Applications”, 1998.
15. Marc Bertrand “Developing an Electronic Commerce Application”, 1998.
16. Alan Bruce, “Internet Security – SSL”, 1998.
17. Steve Cuddy, “SmartCard Technology”, 1998.
18. Geordie Ferguson, “Dynamic Binding in Corba”, 1998.
19. Mark Fine, “Distributed Calendar Using Java”, 1998.
20. Matthew Frederick, “NFS Fault Detection”, 1998.
21. Ken Gower, “A User Interface for Instrumentation”, 1998.
22. Piotr Masteg and Bogdan Skwarko, “Software Maintenance using Program Understanding Tools”, 1998.
23. Sandra Taylor, “QoS Research Study on UWO’s ATM Network”, 1998.
24. Paul Desjarlais, Glenville Jones, and Gerard Molenkamp, “Extension of Management Agents using Java”, 1997.
25. Laurence Eng and Simon Lee, “System Visualization”, 1997.
26. Kevin MacGregor, Jeffery McRae, and Yanlin Tao, “Service Support for Policy-Driven Management”, 1997.
27. Terry Mulholland, Wendy Murphy, and Corby Webster, “Distributed Games Using Java”, 1997.
28. Dino Achille “The Mudball Game ”, 1996.
29. Ian Butt and Calvin Martin, “Fault Location for Disk Faults”, 1996.
30. Krzysztof Dabrowsky, Mark Donsky, Radu Vaduva, Przemyslaw Struminsky, “Departmental Database for Graduate Students”, 1996.

31. Mark Fox, “Performance Monitoring”, 1996.
32. Derek Stinnes, “Visualisation in Distributed Systems”, 1996.
33. Isabella Palczak and Magij Palczak, “ATM Protocol Modelling”, 1996.
34. Zhenjun Zhu, “Network Modelling using NETMOD”, 1995.
35. Kevin Sherrat, “Using Genetic Programming for Games”, 1995.

**Note.** I would like to point out that the reduction of students that I supervised for CS490 for 1999 was reduced as the result of the formal introduction of CS470.

## Graduate Teaching

### Instruction

1. **CS 848: Topics in Mobile and Pervasive Computing.** This is a new course that has been offered once a year since January 2002.
2. **CS 848: Topics in Quality of Service Management for Network and Web Servers,** January 2001.
3. **CS846: Management of Distributed Systems** - A graduate course examining the wealth of difficult and different problems and experiences regarding the management of distributed systems.
4. **CS845: Fault Tolerance in Distributed Systems** - A graduate course examining the wealth of difficult and different problems and experiences regarding the relevance of hardware and software fault tolerance. This course was taught in 1993, 1995 and 1996. I was invited to teach this course as part of the CONGESE program at Nortel in Ottawa. I did so in 1996/1997.
5. **CS619a: Introduction to Parallel Programming** - This is an introductory course in parallel programming. This course was taught with four other instructors in 1994 and twice in 1995. This course was on top of our regular teaching load.
6. **CS632a: Formal Methods in Software Engineering** - This is a graduate course focussing on the applicability of formal definition techniques to software development at the different stages to better ensure that we have “correct” software. This course was taught in Fall, 1992.
7. **CS710a: Topics in Software Design and Methodology** – Topics in distributed systems design for reliability purposes. This course was taught in Spring, 1995.
8. In the last three years, I have supervised over 15 reading courses for graduate students.

# Service

## Administrative Work (Brief Summary)

**Graduate Chair.** The increase in the number of graduate students started while I was graduate chair. I reformed the admissions process to ensure that students are of higher quality and made the coursework MSc more rigorous.

**Associate Chair.** I coordinated initiatives and activities involving space and equipment. I consulted with students and faculty in several ways: Discussion with individual faculty and students, surveys sent out to graduate students and faculty and at Departmental meetings. Based on this I wrote the arguments justifying a large increase in space. Once we received our allocation, I again consulted with the graduate students and faculty on the best way to utilize the space. There is a wide diversity of opinions on space utilization and I often found conflicts between faculty members and strong differences of opinion between faculty and students. The result is high quality space for many of our graduate students. MC 240 is an example of open space for graduate students. I was the primary designer of this space (i.e., furniture layouts). This particular space has been used as a showcase for other departments to consider. Other high quality graduate student spaces are the offices in Western Science.

The space in MC 240 was designed based on observing the quality of interactions among PhD students participating in activities at the IBM Centre of Advanced Studies in Toronto. MC 240 has many of the desirable characteristics that the IBM space has. We placed students from different research groups in that space. I have observed that we now have students attending different talks presented by members of other research groups. There is active discussion among students about their research. The other labs in Middlesex College were designed on the same principles but those labs primarily have students from one research area. The interactions among these students appears to be good but I believe that the interactions among students in MC 240 provides these graduate students a broader view of research activities in the Department.

I carried out an overview of the undergraduate curriculum and identified a number of problems. I chose to first focus on first year. Enrollments in Computer Science programs has seen huge declines since 2001. The reasons are complex. I believe that part of the effort to address the problems in enrollments is to learn how to better retain our students who take our introductory courses. I did a good deal of research in computer science education. I came to the conclusion that we do not make an effort to engage our first year students. I explored different teaching paradigms. One of the most interesting paradigms came from Georgia Tech but the programming language was Python. This would have meant changes to both first and second year courses. We waited until a Java version of the Georgia Tech course came out. I was able to convince Professor M. Bauer and Professor M. Katchabaw of the importance of engaging the students. Both taught (this resulted in a course overload for these two faculty members) the first offering of the changed CS026 which took place last year. This year our second year classes saw a 34% increase in the number of students

enrolled. Most other Canadian schools are reporting no increase to 5% increase. We have not conducted surveys to determine why there is an increase, but it would appear to be linked to changes in CS026.

I also put through a major change to CS 31 resulting in CS 33. The reason is that CS 31 had not adapted to accommodate the fact that students have much more Computer Science background then 10 years ago. I formed a committee that included myself, Professor Mercer and Professor Sedig, to redesign the course. The result is a new course that appears to excite people taking it.

Another weaknesses identified was the lack of a parallel programming in the curriculum. A course is being offered this year by Professor M. Maza.

The review of the curriculum was presented at the 2006 Departmental retreat (just before my sabbatical). This year the curriculum committee is essentially going through the other points brought up at the 2006 retreat.

## Department Committees

2009-2009	APE
2010-2010	APE
2007-2009	Awards Chair
2007-2009	Promotions and Tenure Committee for Applied Math
2007-2008	Workload Committee
2005-2006	Workload Committee
2003-2004	Appointments Committee
2003-2004	Annual Performance Evaluation Committee
2002-2006	Space and Resources Committee (Chair)
2002-2004	Joint CS and EE Committee on Software Engineering (Co-Chair)
2002-2005	Promotions and Tenure Committee
2001-2002	Chair Selection Committee
2001-2006	Curriculum Committee
2000-2002	Graduate Executive Committee (Chair and Member)
2000-2002	Appointments
2000-2001	Promotions and Tenure Committee
1998-1999	Software Engineering Curriculum Committee
1997-1999	Resource Planning Committee
1992-1999	Undergraduate Curriculum Committee
1993-1997	Appointments, Promotions and Tenure Committee
1993-1999	Ph.D Comprehensive Examination Committee
1993-1999	Graduate Executive Committee
1993-1999	Faculty Advisor for the ACM Student Chapter

## Faculty and University Committees

2007-2009	Promotion and Tenure Committee, Department of Applied Mathematics
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2004-2006	Senate Review Board Academic (SRBA)
2005-2005	Faculty of Graduate Studies OGGST Scholarships Committee
2003-2005	Faculty of Engineering Decanal Selection Committee
2001-2002	Faculty of Engineering Council Committee (Faculty of Science Representative)
2000-2002	SCITS Committee on Electronic Commerce
1997-1999	Senate Committee on Information Technology and Services (SCITS)
1997-1999	Senate Technical Committee to Select a Telephony System

## Other Service

- November, 2007: Participated in Fall Preview Day
- March, 2006: Presented a talk at a panel for graduate students titled “Teaching Assistant - TA Supervisor”.
- February, 2006: CIPS Review for the University of Calgary
- November, 2005: Participated in a Woman and Technology Session that works with junior high school females.
- November, 2005: Participated in Fall Preview Day
- June, 2005: Program Reviewer for the Computer Programmer Analyst Program Review for Fanshawe College
- March, 2005: CIPS Review for University of New Brunswick
- March, 2005: Presented a talk at a mentor session for new faculty titled “The Role of Faculty in the Supervision of Graduate Students and Teaching Assistants”

## Other

### Public Awareness

We were invited to write a column on policy-driven management that appeared in the June issue of *Computing Canada*.

I was a judge at the 2000 Canada Science Fair.

### Non-academic Experience

2/88-8/89 Iowa Geological Survey, Iowa City, Iowa, Programmer Analyst

## **Favourite Chocolates**

ALL OF THEM