

Curriculum Vitae**Brian Glen PATRICK**

209-475 Parkhill Road West, Peterborough, Ontario, Canada K9H 7M5
(705) 876-6574

bpatrick@trentu.ca

University Education

- October 1995 M.B.A. (Finance/International Business) McGill University, Montreal, Canada
- February 1992 Ph.D. (Computer Science) McGill University, Montreal, Canada
Thesis: An Analysis of Iterative-Deepening-A (Monroe Newborn)*
Graduated with Excellence
- Natural Sciences and Engineering Research Council (NSERC) Postgraduate Scholarship
- November 1986 M.Sc. (Computer Science) Queen's University, Kingston, Canada
Thesis: The Design and Analysis of Synchronous, Adaptable Algorithms (Selim Akl)
- NSERC Postgraduate Scholarship
 Queen's University Graduate Scholarship
- June 1984 B.C.S. (Computer Science/Business Option) Concordia University, Montreal, Canada
Graduated with Great Distinction
- Concordia Entrance Scholarship
 NSERC Summer Research Award

University Career

- 2007-present Chair, Department of Computing & Information Systems
 (formerly Computer Science/Studies)
 Trent University
 Peterborough, Ontario, Canada
- 2001-present Associate Professor (with tenure)
 Computer Science/Studies
 Trent University
 Peterborough, Ontario, Canada
- 1995-2001 Assistant Professor
 Department of Computer Science, Mathematics and Physics
 University of the West Indies (Cave Hill Campus)
 St. Michael, Barbados
- 1990-1995 Assistant Professor
 Department of Computer Science and Engineering
 Collège militaire royal de Saint-Jean
 Richelain, Quebec, Canada

Book Publications

de Champlain, M. and **Patrick B.G.** (2005) *C# 2.0: Guide pratique du développeur*, Dunod Éditeur, Paris, France

de Champlain, M. and **Patrick, B.G.** (2005) *C# 2.0: Practical Guide for Programmers*, Morgan Kaufmann Practical Guide Series, Elsevier

de Champlain, M. and **Patrick, B.G.** (2003) *Java Jumpstart: Using Object Concepts and UML*, DOK Publications

Journal Publications

Garner, L.D., Meek, T.L. and **Patrick, B.G.** (2009) The Phantom Atom Approach: An extension of the Revised Lewis-Langmuir atomic charge equation to the treatment of anions, *Journal of Molecular Structure* 916, pp. 91-93.

de Champlain, M. and **Patrick, B.G.** (2006) B#: A language for small footprint embedded systems applications (Part II), www.embedded.com, April 21, 2006

de Champlain, M. and **Patrick, B.G.** (2006) B#: A language for small footprint embedded systems applications (Part I), www.embedded.com, March 22, 2006

Garner, L.D., Bonamy, A.F., Meek, T.L. and **Patrick, B.G.** (2003) Calculating group electronegativities using the revised Lewis-Langmuir equation, *Journal of Molecular Structure* 639, pp. 151-156

Garner, L.D., Meek, T.L. and **Patrick, B.G.** (2003) Revised Lewis-Langmuir atomic charges, *Journal of Molecular Structure* 620, pp. 43-47

Depradine, C.A. and **Patrick B.G.** (1999) A software tool for the reuse of object-oriented classes, *Caribbean Journal of Mathematical and Computing Sciences* 9, pp. 1-17

Patrick, B.G. (1999) A time complexity spectrum of IDA*, *Caribbean Journal of Mathematical and Computing Sciences* 9, pp. 39-50

Patrick, B.G., Almulla, M. and Newborn, M.M. (1992) An upper bound on the time complexity of iterative-deepening-A*, *Annals of Mathematics and Computer Science* 5, pp. 265-277

Conference Publications

de Champlain, M. and **Patrick, B.G.** (2009), *Small and Reusable Data Structures in C*, Embedded Systems Conference, San Jose, California, April 26-29

de Champlain, M. and **Patrick, B.G.** (2008) Writing Generic Device Drivers, *Embedded Systems Conference*, San Jose, California, April 15-17

de Champlain, M. and **Patrick, B.G.** (2008) Implementing a Memory Manager for Small Footprint Embedded Systems, *Embedded Systems Conference*, San Jose, California, April 15-17

de Champlain, M. and **Patrick, B.G.** (2005) Architecture of a small footprint embedded virtual machine, *Embedded Systems Conference*, Boston, Massachusetts, September 12-15

Patrick, B.G. and Zhang, H. (2005) Using Marginal analysis for parallel job scheduling with faulty processors, Workshop on Scheduling and Resource Management for Parallel and Distributed Systems, *International Conference on Parallel and Distributed Processing Techniques and Applications I*, Las Vegas, Nevada, June 27-30, pp. 17-23

Patrick, B.G. and Jack, M. (2003) Equipartitioning versus marginal analysis for parallel job scheduling, *Proceedings of the Fourth International Conference on Parallel and Distributed Computing, Applications and Technologies*, Chengdu, China, August 27-29, pp. 765-768

Patrick, B.G. and Jack, M. (2003) Parallel job scheduling using marginal analysis, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications 2*, Las Vegas, Nevada, June 23-26, pp. 602-608

Patrick, B.G. (2002) An optimal expected case parallel variant of the Northwest Corner Rule, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications 3*, Las Vegas, Nevada, June 24-27, pp. 1165-1171

Patrick, B.G. (2001) A naïve but optimal expected case parallel variant of the Northwest Corner Rule, *Proceedings of the Fifth Conference of the Faculty of Pure and Applied Sciences*, University of the West Indies, Jamaica, January 8-11, pp. 116-120

Depradine, C.A. and **Patrick B.G.** (2000) The Collection-View Model: A pattern language for software reuse tools, *Seventh Pattern Languages of Programs Conference*, Allerton Park, Illinois, August 13-16

Depradine, C.A. and **Patrick, B.G.** (1999) A model for software reuse: The Collection-View Model, *Proceedings of the Tenth Annual Meeting and Technical Conference of the Caribbean Academy of Sciences*, Paramaribo, Suriname, Oct. 6-8

Depradine, C.A. and **Patrick, B.G.** (1999) A scripting language for the reuse of object-oriented classes, *Proceedings of the Fourth Conference of the Faculty of Pure and Applied Sciences*, University of the West Indies, Jamaica, pp. 53-55

Patrick, B.G. (1998) The marginal analysis of synchronous adaptable algorithms, *Proceedings of the Ninth Annual Meeting and Technical Conference of the Caribbean Academy of Sciences*, Gosier, Guadeloupe, May 28-30

Depradine, C.A., **Patrick, B.G.** and Posthoff, C. (1997) A document format for the reuse of object-oriented classes, *Proceedings of the Third Conference of the Faculty of Pure and Applied Sciences*, University of the West Indies, Jamaica, pp. 26-27

Patrick, B.G. (1992) Binary iterative-deepening-A*: An admissible generalization of IDA* search, *Proceedings of the Ninth Canadian Conference on Artificial Intelligence*, Vancouver, Canada, pp. 54-59

Patrick, B.G., Almulla M. and Newborn, M.M. (1990) Worst case analysis of iterative-deepening-A* search, *Proceedings of the First International Symposium on Artificial Intelligence and Mathematics*, Fort Lauderdale, Florida, January 3-5

Other Reports

Patrick, B.G. (2007) Proposed Program/Curriculum Changes, Computer Science/Studies, Trent University

Patrick, B.G. (2006) Revised Curriculum for Computing and Information Systems, Computer Science/Studies, Trent University

Patrick, B.G. (2000) Revised Curriculum for Computer Science and Cross-Faculty Options, Department of Computer Science, Mathematics and Physics, University of the West Indies (Cave Hill), 17 pages

Patrick, B.G. (1997) Revised Curriculum for Computer Science, Department of Computer Science, Mathematics and Physics, University of the West Indies (Cave Hill), 17 pages

Manuscripts in Progress

de Champlain, M. and **Patrick, B.G.** , The B# Project: An Object-Oriented Language and Virtual Machine for Small Embedded Systems (expected in 2008)

Program Committee Member

10th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, Daegu (South Korea), May 27-29, 2009

7th IEEE/ACIS International Conference on Computer and Information Science, Portland, Oregon, May 14-16, 2008

8th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, Tianjin (China), July 2007

Supervision

2007-present	Eric Marvin, Trent University M.Sc. Thesis (in progress) <i>Co-supervisor:</i> Richard Hurley
2006-present	Thomas Wisniewski, Trent University M.Sc. Thesis (in progress)
2004-2006	Michael Jack, Trent University M.Sc. Thesis: Workload Modeling and Internal Backfilling for Parallel Job Scheduling
2003-2005	Huiyi Zhang, Trent University M.Sc. Thesis: Marginal Analysis Applied to Parallel Job Scheduling with Memory Constraints, Faulty Processors, and Periodic Reallocations
2000-2003	Leah Garner, University of the West Indies, Barbados Ph.D. Thesis: A Revised Lewis-Langmuir Atomic Charge Equation: A Quick Calculation of Atomic Charges and Some Applications <i>Co-supervisor:</i> Terry Meek
1995-1999	Colin A. Depradine, University of West Indies, Barbados Ph.D. Thesis: A Software Tool for the Reuse of Object-Oriented Classes <i>With High Commendation</i> <i>Most Outstanding Graduate Student Thesis Award (1999)</i>

Grants

2008	\$ 6240.00	Academic Innovation Fund <i>Purpose:</i> To develop a laboratory component for courses in COIS
2006	\$ 1890.00	Internal NSERC Award <i>Purpose:</i> Beta-testing for the B# programming language and virtual machine
2003	\$ 4500.00	Internal NSERC Award

		<i>Purpose:</i> To continue research on parallel job scheduling
2001-2003	\$ 20000.00	Start-Up Grant <i>Purpose:</i> To set up a research program and to purchase equipment
Summer 2003	\$ 750.00	Academic Innovation Fund (with Jonathan Swallow) <i>Purpose:</i> To develop a binary help learning object for COSC202H
Summer 2002	\$ 2648.30	Academic Innovation Fund <i>Purpose:</i> To attend the Faculty Development Workshop at UPEI
Summer 2002	\$ 3200.00	Internal NSERC Award <i>Purpose:</i> To support a summer research student (Michael Jack) and to develop simulation models for parallel job scheduling

Pedagogical Conferences

July 29 - August 2, 2002	Faculty Development Summer Institute, University of Prince Edward Island, PEI <i>Theme:</i> Active Learning and Teaching in University and College
May 15, 2002	15 th Annual TSS Conference, University of Guelph, Guelph, Ontario <i>Theme:</i> Fostering Academic Integrity

Administrative Duties (Trent University)

2008-present	Chief Judge, Peterborough Regional Science Fair
2006-present	Member, Special Appeals Committee
2005-2007	Chair, Curriculum Review Committee for Computer Science/Studies
2005	Member, Academic Planning Committee
2004-2007	Director, Peterborough Regional Science Fair
2004	Member, Champlain Scholarship Committee
2004-2005	Member, User's Committee on Information Systems and Technology
2003-2005	Member, Academic Advising Committee
2001-present	Member, Program Committee (Computer Science/Studies)
2002-2003	Member, Special Appeals Committee
2001-present	Member, Applications of Modeling in the Natural and Social Sciences Graduate Program

Administrative Duties (University of the West Indies)

1999-2000	Subject Co-ordinator, Computer Science
1997-2000	Science and Technology Representative, Faculty of Social Sciences
1997-2000	Departmental Representative, Joint Programs in Computer Science
1998-1999	Non-Professorial Representative, Academic Board
1998-1999	Departmental Prizes Officer

Organization of Lectures and Seminars

October 14, 2005	Professor Selim G. Akl, Queen's University <i>Seminar Topic:</i> The Myth of Universal Computation
February 23-27, 1998	Professor Monroe M. Newborn, McGill University, Canada <i>Public Lecture:</i> Kasparov vs Deep Blue: Computer Chess Comes of Age

May 12-13, 1997 *Seminar Topic:* The World Championship of Automated Theorem Proving
 Dr. Michel de Champlain, University of Canterbury, New Zealand
Seminar Topic: A Pattern Language for Porting Micro-Kernels in Embedded Systems

Seminars

February 17, 2004 *Topic:* Teaching, Research and the Pursuit of Tenure
 Faculty Mentoring Program, Trent University

March 5, 2003 *Topic:* Assignment Group Work
 Interactive Learning Centre, Trent University

Extracurricular Activities

2007-2010 Chief Judge, Canada-Wide Science Fair 2010
 2007-present Member, Naturally Speaking Toastmasters Club, Peterborough, Ontario
 District 60 Table Topics Champion, 2009
 President, 2008-2010
 2005-2007 Co-Chair, Canada-Wide Science Fair 2010
 2002-2006 Coach, ACM Programming Contest, Trent University
 2001-present Member, Peterborough Toastmasters Club, Peterborough, Ontario
 Speechcraft, Fall 2009
 Area 26 Governor, 2007-2008
 District 60 Coach of the Year, 2007
 Toastmaster of the Year, 2007
 Vice-President (Public Relations) and Past President, 2005-2006
 President, 2004-2005
 Sergeant-at-Arms, 2003-2004
 Vice-President (Membership) 2002-2003
 2000-2001 Member, Sunjet Toastmasters Club, St. Michael, Barbados
 Toastmaster of the Year, 2001

CURRICULUM VITAE**Richard T. Hurley****Home Address:**

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Peterborough, ON
Canada
K9K 2P6
(705) 749-9625

Business Address:

Department of Computing and Information Systems
Trent University
Peterborough, ON, Canada
K9J 7B8
Tel: (705) 748-1011 x7542
email: rhurley@trentu.ca

Date and Place of Birth: 1962, Fredericton, NB, Canada

Marital Status: Married with one son

Nationality: Canadian

EDUCATION:

Sept. 1984 - University of Waterloo, Waterloo, ON, Canada

July 1991 Ph.D. degree in Computer Science

Thesis: "An Investigation of File Migration in a Distributed File System"

Supervisors: Dr. J. W. Wong, (519) 888-4431

Dr. J. P. Black, (519) 888-4459

Sept. 1980 - University of New Brunswick, Fredericton, NB, Canada

Apr. 1984 B.Sc. degree in Computer Science in First Division,

Minor: Mathematics

GRANTS, SCHOLARSHIPS, and AWARDS:

2007	Trent University Internal NSERC Grant	\$1800
2004	Trent University Academic Innovation Fund	\$975
2002	Trent University Internal NSERC Grant	\$3140
2001	Symons Award for Excellence in Teaching	
1999	Sun Microsystems AEG Grant	\$76,500
1997-98	Trent University Internal NSERC Grant	\$1000
1995-96	Trent University Internal NSERC Grant	\$2200
1992-93	Trent University Internal NSERC Grant	\$4200
1991-92	Trent University Internal NSERC Grant	\$4500
1989-90	Departmental Fellowship	\$4000
1984-88	NSERC Postgraduate Scholarship	\$13,500
1983	NSERC Summer Research Scholarship	\$4000

PROFESSIONAL EXPERIENCE:

- Aug. 1991 - present** - Computer Science/Studies Program - Professor and Chair
 LOCATION: Trent University
 Peterborough, ON, Canada
 K9J 7B8
 COURSES: COIS1010H: Digital World
 COSC102H: Introduction to Software Engineering with C/C++
 COIS1020H: Programming for Computing Systems
 COSC104H: Programming Methodologies
 COST151H: Introduction to Computer Science with Applications
 COSC152H: Introduction to Programming
 COSC202H: Data Structures and Algorithms
 COSC230: Computer Organization
 COIS3050H: Theory of Computation
 COSC332H: Operating Systems
 COIS3380H: Systems Programming
 COSC340H: Database Management Systems
 COSC347H: Modelling and Simulation
 COSC432H: Distributed Systems
 COSC401H/402: Software Engineering
 AMOD581h: Computational Aspects of Modelling
- Granted tenure in July, 1995
 - Promoted to Associate Professor on July, 1997
 - Chairman of Computer Science/Studies Program, Jan. 1999 - Jun. 2007
 - Awarded the Symons Award for Excellence in Teaching in 2001
 - Promoted to Full Professor on July, 2004
- July 1998 - Aug. 1998** - Faculty of Computer Science - Instructor
 LOCATION: University of New Brunswick
 Fredericton, NB, Canada
 DEAN: Dr. Jane Fritz, (506) 447-7287
 COURSE: CS2403 - Operating System Principles
- Sept. 1989 - July 1991** - Department of Computer Science - Programmer
 LOCATION: University of Waterloo
 Waterloo, ON, Canada
 SUPERVISOR: Linda Norton, (519) 888-4464
 DUTIES: To design and implement a graduate database system for the School of Computer Science. The database system was implemented on using Double Helix for a network of Apple MacIntosh computers.
- Sept. 1984 - July 1991** - Department of Computer Science - Teaching Assistant
 LOCATION: University of Waterloo
 Waterloo, ON, Canada
 DUTIES: To conduct tutorials, set and mark assignments and tests, meet with students, and give occasional lectures. Variety of courses included Distributed Systems, Computer Networks, Database Management, Data Structures, Simulation, and Computer Organization.

May 1984 - Defense Research Establishment Atlantic - Research Assistant

Aug. 1984 LOCATION: P.O. Box 1012

Dartmouth, NS, Canada

SUPERVISOR: Dr. Joseph N. Maksym, (902) 426-3100

DUTIES: An object, such as a single ship, generates a set of characteristic manifestations that can be observed as signal features. The knowledge representation language ATHENA was used to simulate the combined manifestations of a randomly chosen set of objects and three different methods were used for inferring the set of objects present.

May 1983 - University of New Brunswick - Research Assistant

Aug. 1983 LOCATION: Box 4400

Fredericton, NB, Canada

SUPERVISOR: Prof. John M. DeDourek, (506) 453-4566

DUTIES: Major project was to design, code, and test an error compaction scheme for an interactive Pascal compiler. Other duties included revision of existing routines as well as the implementation and testing of new routines.

PUBLICATIONS:

Refereed Journals

Hurley, R. T., J. Mak and B. C. Domzy, "Performance Comparison of Algorithms for Gathering Remote State Information", *To Appear in the International Journal on Computers and Their Applications*, (Sept. 2009).

Feng, W. and R. T. Hurley, "Ratio Conditions on the Parameters of a Class of Service Systems," *ACIS International Journal of Computers & Information Science (IJCIS)*, Vol. 6, No. 1 (2005), pp. 38 -47.

Feng, W. and R. T. Hurley, "Performance Comparison for Service systems With or Without Anticipated Delay Information by Analysis and Simulation", *International Journal of Computers and Their Applications*, Vol. 11, No. 3, pp. 143-151, (Sept. 2004).

Hurley, R. T. and S. A. Yeap, "File Migration and File Replication: A Symbiotic Relationship," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 3, No. 6, pp. 578-586, (Jun., 1996).

Hurley, R. T., Guest Editor, *Journal of Computing and Information: Special Issue: Proceedings of the 8th International Conference on Computing and Information*, University of Waterloo, June 19-21, 1996, Vol. 2, No. 1, (Nov., 1996).

Hurley, R. T., Guest Editor, *Journal of Computing and Information: Special Issue: Proceedings of the 7th International Conference on Computing and Information*, Trent University, July 5-8, 1995, Vol. 1, No. 2, (Sept., 1995).

Hurley, R. T., Guest Editor, *Journal of Computing and Information: Special Issue: Proceedings of the 6th International Conference on Computing and Information*, Trent University, May 26-28, 1994, Vol. 1, No. 1, (Apr., 1995).

Refereed Conference Publications

Hurley, R. T. and B. Y. Li, "Effects of Dynamic Content on Web Caching," *Proc. of the ISCA 21st International Conference on Parallel and Distributed Computing and Communication Systems (PDCCS'08)*, New Orleans, LA, USA (Sept. 24-26, 2008).

Hurley, R. T. and B. Y. Li, "A Performance Investigation of Web Caching Architectures," *Proceedings of the Canadian Conference on Computer Science and Software Engineering (C3S2E-08)*, Montreal, QC, Canada (May 12-13, 2008).

Zhang, Yong, Wenying Feng and Richard Hurley, *Integration of QoS queuing schedules to QoS caching schemes*, Proceedings of the 5th IEEE/ACIS International Conference on Computer and Information Science (ICIS-2006), Honolulu, Hawaii, USA (July 10-12, 2006).

Hourie, Craig, James W. Jury, and Richard T. Hurley, "An Empirical Comparison of Monte Carlo Methods for Simulating Random Variants that follow Cubic Polynomial Based Mathematical Models", *Proceedings of the 14th International Conference on Intelligent and Adaptive Systems and Software Engineering*, pp. 258-262, Toronto, ON, Canada (Jul. 20-22, 2005).

Hurley, R. T., W. Feng, and B. Y. Li, "Performance Benefits of Partitioning in a Web-Caching Environment", *Proceedings of the 16th International Conference on Computer Applications in Industry and Engineering*, pp. 64-68, Las Vegas, Nevada, USA (Nov. 11-13, 2003).

Hurley, R. T., W. Feng, and B. Y. Li, "Partitioning in Distributed and Hierarchical Web-Caching Architectures: A Performance Comparison", *Proceedings of the 16th International Conference on Computer Applications in Industry and Engineering*, pp. 184-188, Las Vegas, Nevada, USA (Nov. 11-13, 2003).

Feng, W., R. T. Hurley, and Z. Tan, "Increasing Web Cache Hit Rate by Dynamic Location Partitioning", *Proceedings of the 7th Joint Conference on Information Sciences*, pp. 405-409, Cary, North Carolina, USA (Sept. 26-30, 2003).

Hurley, R. T., W. Feng, and B. Y. Li, "An Analytical Comparison of Distributed and Hierarchical Web-Caching Architectures", *Proceedings of the ISCA 18th International Conference on Computers and Their Applications*, pp. 291-295, Honolulu, Hawaii, USA (March 26-28, 2003).

Hurley, R. T. and W. Feng, "The Adverse Effects of Large Files in a File Migration System", *Proceedings of the 17th International Conference on Computers and Their Applications*, pp. 192-197, San Francisco, CA, USA (Apr. 6-8, 2002).

Feng, W. and R. T. Hurley, "Birth-Death Models for a Class of Service Systems", *Proceedings of the 20th IASTED International Conference on Applied Informatics (AI2002)*, pp. 320-325, Innsbruck, Austria (Feb. 18-22, 2002).

Hurley, R. T. and W. Feng, "Performance Results on Scheduling Algorithms for a Broadcast Information Delivery System", *Proceedings of the ISCA 16th International Conference on Computers and Their Applications (CATA-2001)*, pp. 247-250, Seattle, WA, USA (Mar. 28-30, 2001).

Hurley, R. T. and B. F. Hircock, "Benefits of Vertical File Migration in a Horizontal File Migration System," *IASTED International Conference on Parallel and Distributed Computing Systems*, pp. 365-370, MIT, Boston, MA, USA (Nov. 3-6, 1999).

Hurley, R. T., J. W. Wong, and J. P. Black, "The Effect of Out-Dated State Information on File Migration", *10th International Conference on Parallel and Distributed Computing Systems*, pp. 433-437, New Orleans, LA, USA (Oct. 1-3, 1997).

Hurley, R. T., J. P. Black, and J. W. Wong, "Limited Effects of Finite Storage on a Beneficial File Migration Policy," *Proceedings of the 19th Conference on Local Computer Networks*, pp. 432-439, Minneapolis, MN, USA (Oct. 2-5, 1994).

Hurley, R. T., S. A. Yeap, , J. W. Wong, and J. P. Black, "Potential Benefits of File Migration in a Heterogeneous Distributed File System", *Proceedings of ICCI'93: 5th International Conference on Computing and Information*, pp. 123-127, Sudbury, ON, Canada (May 27-29, 1993).

Hurley, R. T., J. P. Black, and J. W. Wong, "Modelling and Investigation of a Primitive File Transfer Operation," *Proceedings of ICCI'92: 4th International Conference on Computing and Information*, pp. 461-465, Toronto, ON, Canada (May 28-30, 1992).

Hurley, R. T., J. W. Wong, and J. P. Black, "Performance of File Migration in a Distributed File System," *Proceedings of ICC-90: 10th International Conference on Computer Communications*, pp. 685-692, New Delhi, India (Nov. 5-9, 1990).

Vernon, A. J., R. T. Hurley, J. W. Wong, J. A. Field, and J. P. Black, "Queuing Analysis of Transport Layer Connections in an Internet Environment," *IEEE International Conference on Communications '89*, pp. 658-664, Boston, Mass. (Jun. 11-14, 1989).

Technical Reports

Palbom, J. and R. T. Hurley, "Computers and the Physically Challenged", *Technical Report, Computer Studies Program*, Trent University, Peterborough, ON (Dec. 1993).

Hurley, R. T., "An Investigation of File Migration in a Distributed File System," Ph.D. Thesis, *CCNG Technical Report T-213*, Computer Communications Networks Group, University of Waterloo, Waterloo, ON (Jan. 1992).

RESEARCH INTERESTS:

Currently, I am conducting research in a number of areas. My primary area of research is in the performance of resource management strategies for distributed systems. I have also been working with Dr. Jury and a team from the University of Melbourne on using digital technology to enhance the resolution of gamma cameras for diagnostic imaging. Finally, and most recently, I have been working with the Special Needs Department at Trent and Dr. Keith Bain at St. Mary's University to investigate how new applications of speech recognition (SR) technology can be used to provide a barrier-free learning environment for all students (referred to as Liberated Learning).

Performance of Resource Management Strategies

The primary focus of my research is in the architecture and performance of distributed systems and wireless computer networks. More specifically, my research involves the design and evaluation of resource management strategies for high-powered distributed systems (which extend to the WWW). A combination of analytic and simulation models are used to study the theoretic performance of systems and policies developed. The current topics include: performance of file management systems, policies for gathering of remote state information, web-caching, dynamic web content, and bandwidth allocation in wireless networks.

Digital Enhancement of Gamma Cameras for Diagnostic Imaging

Current-technology gamma cameras are in widespread use for human diagnostic radiology. However, these cameras suffer from limited spatial resolution (5 to 8 mm) and from a severe problem when high rates of gamma ray image acquisition occur and as a result, information is lost and radiation doses to patients are unnecessarily elevated. Using high-speed processors, we intend to digitally analyze each gamma ray signal as it is presented by the detector to increase dramatically the sensitivity of a gamma camera. Thus, very weak pulses can be utilized in forming the image of the patient. This should result in greatly enhanced image resolution (perhaps as much as 2 to 4 mm).

Liberated Learning

Liberated Learning attempts to provide a barrier-free learning environment for all students. Using advanced Speech Recognition Software bundled with text and voice display management components, students are provided with additional resources to aid in their learning. Students with learning challenges, hearing losses, or whose first language is not English benefit from being able to see the text of lecture as it is being delivered. Students with visual challenges or students who were not able to make it to class can use the electronic voice and/or text transcripts to fill in missing information. Using voice/text transcripts of lectures coupled with course notes, text books, and competent electronic contacts (email, instant messaging, etc.), there is excellent set of resources to support students who may be geographically dispersed. The research in this area involves trying to improve the accuracy of the software recognition software (currently between 70% – 90% accurate), enhancing the tools which create the text and voice files, and extending the environment to allow the efficient creation of accessible, on demand E-Content for E-Learning applications.

GPGPU Computing for Ray Tracing

General purpose graphics processor unit (GPGPU) computing is the newly emerged field of running general purpose software on graphics hardware. The motivation for this is that graphics hardware has tremendous performance in specific cases, at the expense of more general features of the traditional central processing unit (CPU). GPGPU is a different paradigm, both in hardware architecture and software design, from the traditional serial approach, and is of great interest to many

fields. One of the objectives of this research is to adapt to the new programming and architecture framework in order to implement novel and higher performance solutions to traditional problems. Ray tracing is a well understood discipline, seeing use in the movie industry already. However present ray tracing requires small (or sometimes large) clusters of computers which are extremely expensive, and in many cases custom architectures. As the computation power of GPUs has increased, some of that functionality is becoming available on the average desktop. Much of this project is concerned with transitioning ray tracing techniques and paradigms from large clusters of expensive machines to single cards which are of the desktop computer.

GRADUATE SUPERVISION:

i) Graduate Students Completed

Brian Hircock: M.Sc.- Jan. 1998

Thesis Title: "Horizontal and Vertical File Migration in a Distributed File System"

Bingyu Li: M.Sc.- Apr. 2002 (co-supervised)

Thesis Title: "An Investigation of Partitioned Caching in the World Wide Web"

John Mak: M.Sc.: Dec. 2002

Thesis Title: "Performance of Resource Management Strategies in Distributed Systems"

Craig Hourie: M.Sc.: Jan. 2005 (co-supervised)

Thesis Title: "An Empirical Comparison of Monte Carlo Methods for Simulating Random Variants that follow Cubic Polynomial Based Mathematical Models"

Yong Zhang: M.Sc.: Sept. 2006 (co-supervised)

Thesis Title: "QoS in Web-Caching Systems"

Brian Srivastava: M.Sc.: Oct. 2008

Thesis Title: Dynamic Ray Tracing Using the Graphics Processing Unit

ii) Graduate Students Currently Supervised:

Eric Marvin: M.Sc.: commenced September 2007.

Graeme Young: M.Sc.: commenced September 2008.

GRADUATE SUPERVISORY COMMITTEES:

- 1) Eva Webster (M.Sc. - 1994) AMOD Program, Trent University
- 2) Alma Barranco (M.Sc. - 1995) AMOD Program, Trent University
- 3) Ray Fritz-Nemeth (M.Sc. - 1997) AMOD Program, Trent University
- 4) Thomas Barry (M.Sc. - 2000) AMOD Program, Trent University
- 5) Jeff McMahan (M.Sc. - 2000) AMOD Program, Trent University
- 6) Dawit Haile (M.Sc. - 2002) AMOD Program, Trent University
- 7) Don McCallum (M.Sc. - 2002) AMOD Program, Trent University
- 8) Huiyi Zhang (M.Sc. - 2004) AMOD Program, Trent University
- 9) Michael Jack (M.Sc. - 2004) AMOD Program, Trent University
- 10) Tom Wisniewski (M.Sc. - 2006) AMOD Program, Trent University
- 11) Jamie Mitchell (M.Sc. - 2006) AMOD Program, Trent University
- 12) Michael Gowanlock (M.Sc. - 2008) AMOD Program, Trent University

COMMITTEES and ASSOCIATIONS:

- Chair, Computer Science/Studies Program: 1998 - 2007
- Acting-Chair, Global Studies Emphasis: 2005-2007
- Computer Science/Studies Committees:
 - Personnel Committee
 - Tenure-Track Hiring Committee: 1997, 2000, 2001, 2003, 2007
 - Chair, Tenure Hearing Committee: 1998, 2002, 2003, 2004
 - Chair, Merit Award Committee: 1999-present
 - Curriculum Committee
 - Timetable Representative: 2001-present
 - Equipment Sub-Committee for Computer Studies
 - Computer Liaison with CTS
- Acting Director of the Applications of Modelling (AMOD) Graduate Program: Jan/98-Jun/98
- TUFA Executive member: Sept. 2001 - Apr. 2007, May 2008 - present
- TUFA Salaries and Benefits Officer for TUFA: 2002 - 2007, May 2008 - present
- TUFA Negotiations team: 2002, 2005
- TUFA representative on Faculty Board: 2002 - 2007
- TUFA representative on Special Needs: 1996 - 2007, 2008
 - Chairman of the Physical Access Sub-Committee
- TUFA Pension Committee: 2004 - 2007
- TUFA Vice-President: 2006/07
- TUFA Treasurer: 2006/07, 2008/09
- Instructor in the Trent Enrichment Program: 1996 - 2000
- Instructor in the Elderhostel Program: 1996 - 1997
- Instructor in the Non-Credit Continuing Education Program: 1997
- Selection Committee for Associate Dean of Science: 1998, 2005
- Selection Committee for Chairman of Math Department: 1999, 2002, 2009
- Search Committee for Chair of Philosophy: 2002
- Search Committee for Director of Information Technology: 2002/03
- Chair, OC Head Search Committee: 2003
- Senate: 1999 - 2001, 2005-2007
- Committee on Technology and Learning: 1999 - 2003
- University Disability Access Plan Committee: 2002/03
- Joint Committee to Investigate Salary Model: 2003 - 2006
- Continuing Education Committee: 2003-2005, 2008/09
- Committee on Academic Personnel: 2006/07
- Canadian Information Processing Society (CIPS): 2001 - present
- Computer Science Accreditation Council: 2001 - 2007
- Association for Computing Machinery (ACM): 1988 - present
- Institute of Electrical and Electronics Engineers (IEEE): 1989 - present
- Board of Directors of the Five Counties Childrens Center: 1995 - 2005
- Kiwanis Park Neighborhood Association: 1994 - 2004
 - Formed to raise money for a wheelchair-accessible playground equipment. To date, we have raised over \$30,000 and have installed two phases of the equipment. The first phase was installed in Sept., 1994 and the second was installed in Aug., 1995. The third phase was installed in the Spring of 1997.
 - Received a City of Peterborough Civic Award for Community Betterment in 1994

Curriculum Vitae

Brian Frederick Hircock

Residence: 636 Fire Route #1 RR #2 Peterborough, Ontario Canada K9J 6X3 Tel: (705) 760-9235	Business: Trent University 1600 West Bank Drive, Peterborough, Ontario K9J 7B8 Office: OC 102.4 Tel: (705) 748-1011, ext 7768 Secretary: Bonnie MacKinnon (705) 748-1011, ext 7802 Email: bhircock@trentu.ca
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Personal Information

Date and Place of Birth: August 17, 1952, Bowmanville, Ontario, Canada
 Marital Status: Single
 Nationality: Canadian

Education

Sept 1995 - Jan 1998
 Trent University, Peterborough, Ontario, Canada
 Master of Science in Applications of Modelling (Computer Science)
 Thesis: "Horizontal and Vertical File Migration in a Distributed File System"
 Supervisor: Dr. R. T. Hurley, (705)748-1011, ext 1542 (rhurley@trentu.ca)

Sept 1991 - Apr 1995
 Trent University, Peterborough, Ontario, Canada
 Honours Bachelor of Science

Sept 1971 - May 1972
 Bedford College, Toronto Ontario, Canada
 Diploma as COBOL programmer

Academic/Teaching Awards

May 2009 - Nominated for Symon's Teaching Award
 May 2005 - Nominated for Symon's Teaching Award
 May 2003 - Nominated for Symon's Teaching Award
 May 2002 - Nominated for Symon's Teaching Award
 May 1998 - Finalist for Governor General's Gold Medal
 September 1996 - Ontario Graduate Scholarship
 September 1995 - Ontario Graduate Scholarship
 September 1995 - Trent University Graduate Entrance Award
 September 1993 - Ronald Faryon Scholarship
 September 1992 - Midwife's Prize - highest marks in first year
 Dean's List every year at Trent University

Recent Work Experience

Lecturer, Trent University - September 1999 to present

Location: Department of Computing and Information Systems, Trent University,
Peterborough, Ontario

Department Chair: Dr. Brian Patrick, (705) 748-1011 Email: bpatrick@trentu.ca

Courses Taught:

- Digital World
- Introduction to Software Engineering with C/C++
- Programming Methodologies
- Data Structures and Algorithm Design
- Computer Organization
- Digital Logic
- Computer Crime and Forensics
- Software Development
- Requirements Specification Analysis
- Operating Systems
- Database Management Systems
- Software Engineering Theory and Project
- Software Engineering: Theory
- Software Engineering: Project
- Comparative Programming Languages
- Advanced Computer Architecture
- Artificial Intelligence
- Distributed Systems
- Visual Programming Techniques
- Information Systems for Business and Government
- Societal Impact of Computing
- Data Modelling in Information Systems
- An Introduction to Artificial Intelligence and Artificial Life

Reading Courses Supervised

- Advanced Data Structures and Algorithms
- Computer Linguistics
- Real Time Operating Systems
- An Analysis of the Computer Science 400 Program
- Computers in Education
- Virtual Communities
- Advanced Computer Forensics

Software Engineer, Messier-Dowty Electronics 1998-1999

Location: Peterborough, Ontario

Supervisor: Harley Payne P Eng, (705) 743-6903 ext 211

Duties: Revise and create embedded microcontroller programs for the Aerospace industry.

Prepare documents according to RTCA-DO178-b and military standards. Use Object-Oriented database (DOORS) to track requirements against client specifications.

Sofie Andreou, M.Eng BIO

Sofie Andreou has authored the book, as well as has created & delivered the sought after business seminar series: *Leveraging the Power of the Internet*. Sofie delivers this seminar series to thousands of businesses annually (in over 50 communities in the past year.) Sofie lectures on the same topic at Trent University to over 100 students annually.

Sofie has held senior roles at both Bell Canada, & Ericsson. Became the Chief Operating Officer of a new public high-tech company, where she helped them find their public legs & new markets. Sofie was a member of the Board of Directors of Mobile Climate Control Incorporated, a 78 million dollar Multinational Public Company. This Hands-On Public Board position helped with international acquisitions and mergers transitioning the company to sustainable profits.

Sofie is still affiliated with YLM, The Breken Group, focusing on bringing online Economic Development online Toolsets and Business Data to over 50 Municipalities and 2 Provinces across Canada; showcasing their Municipalities', Tourism, Agricultural, Cultural & Chamber members' businesses.

Sofie Andreou holds an Honors Computer Science degree from the University of Windsor Ontario, and a Master's of Engineering, specializing in Information Systems, from the University of Toronto.

Sofie's passions include traveling off the beaten path with her husband, running 8 half-marathons in the last three years, training with her dog Duke, & inventing the future with University students, Chambers, Municipalities and Business Owners!