Jonathan S. Ostroff: Curriculum Vitae

Summary

History

Ph.D, University of Toronto, Department of Electrical Engineering, 1987

M.A.Sc., University of Toronto, Department of Electrical Engineering, 1979

B.Sc., University of the Witwatersrand, Johannesburg, Department of Electrical Engineering, 1976

1991 – 2009: Associate Professor (tenured), Department of Computer Science and Engineering, York University

1987 – 1991: Assistant Professor

1986 – 1987: Lecturer

1979 – 1981: Systems Engineer for process control software, Imperial Oil Ltd., IOCO refinery, B.C..

1977 – 1977: Computer Hardware Engineer, Perseus Computing and Automation

Supervision

- Currently co-supervising 1 PhD student
- 7 M.Sc students graduated
- 26 CSE4080 senior projects supervised, 1 NSERC USRA, and 2 summer interns
- External examiner for 3 PhD theses at other universities

Professional affiliations

- Senior member, IEEE
- Faculty Fellow, IBM Centre for Advanced Studies, IBM Toronto Laboratory, 2003-2006
- Observer membership to ECMA TC39-TG4 technical committee for the standardization of Eiffel: Analysis, Design and Programming Language

Publications

Books:	1
Chapter in books:	6
Refereed journals:	17 + 1 (invited)
Refereed conferences:	36 + 4 (invited)

Current Grants:

- 2005 – 2010: NSERC Discovery Grant, $33,000 (per year for 5 years)
- 2009: Ontario Research Fund Research Excellence (ORF-RE, Ministry of Research and Innovation). Title: Certification of Safety-Critical Software-Intensive Systems. PI: Tom Maibaum, McMaster University. $6.9m ($21m including private sector and institutional contributions)

Research interests

- Software engineering
- Formal methods for specifying, verifying and certifying safety critical and object oriented concurrent systems
- Mathematics of program construction
- Mathematical models for user requirements, system specifications and testing

Teaching

COSC1020 Intro. to Computer Science I
COSC1030 Intro. to Computer Science II
COSC2001 Intro. to Theory of Computation
MATH2090 Intro. to Mathematical Logic
CSE3341 Intro. to Program Verification
CSE3311 Software Design
CSE4351 Real-Time Systems Theory
CSE4352 Real-Time Systems Practice
CSE4312 Software Engineering Requirements
CSE6411 Programming Logic Complex Systems
CSE6442 OO Software Construction
ELE1643 Special Topics in Control, U of T

Personal Details

Jonathan S. Ostroff
Department Of Computer Science and Engineering,
York University, 4700 Keele Street, North York Ontario, Canada, M3J 1P3.
Email: jonathan@cse.yorku.ca   Tel: 416-736-2100 X77882   Fax: 416-736-5872

Research Funding

Period	Granting agency	Amount
2005 - 2010	NSERC Discovery Grant Title: Formal and Agile methods for Model Driven Development	$33,000 (per year for 5 years)
2009	Ontario Research Fund Research Excellence (ORF-RE, Ministry of Research and Innovation). Title: *Certification of Safety-Critical Software-Intensive Systems*. Grant number: RE03 -045. PI: Tom Maibaum, McMaster University. York University is a collaborating university. The overall Principal Investigator is Tom Maibaum, McMaster University. McMaster is the lead university and Waterloo and York are collaborating institutions. In addition to Prof. Maibaum there are 5 PIs and 14 co-investigators. I am the PI for York and as such will be on the Board of Directors. The Board of Directors provides overall supervision and leadership in setting long-term priorities of the project's activities and ensures the successful operation of the research programme within the financial and programmatic guidelines of the grant. According to the proposal, I am slated to work on such aspects as assessment of engineering methods for critical systems, the generic model of the idealised certification process, engineering methods for safety-critical systems development and case studies and specialization of the process in the medical, nuclear and financial domains.	$6.9m ($21m including private sector and institutional contributions)
2003	IBM Eclipse Innovation Grant	US$28,000

2001-2005	Individual NSERC Operating Grant: "Formal methods for object-oriented software construction".	$31,000 (per year for 4 years)
2001-2004	NSERC MFAIF Grant: "Personnel Support for York Centre of Vision". (PI: Michael Jenkin).	$136,000 (per year for 3 years)
1999-2002	Ontario Research and Development Challenge Fund (ORDCF). "Improvements to the Centre for Vision Research (CVR) at York University". (PI: Laurence Harris)	$228,000 (over 3 years)
1999-2003	Canadian Foundation for Innovation (CFI). " Active Sensory Processing in Real and Synthetic Environments". The total grant is $5,800,000 including ORDCF matching funds ($2,400,000) and Industry (SGI) & York contribution ($1,000,000). In collab oration with and on behalf of The Centre for Vision Research at York University. (PI: Laurence Harris)	$2,400,000 over 3 years
19972001	Individual NSERC Operating Grant: "Design of Safety Critical Real-Time Systems".	$26,000 (year 1) $28,600 (year 2) $30,030 (year3 and 4)
1993-1997	Individual NSERC Operating Grant: "Design of Safety Critical Real-Time Systems".	$20,000 per year
1993	Presidents NSERC: Documenting StateTime	$1500
1992	Presidents NSERC.	$2500
1990/93	Individual NSERC Operating Grant: "Design of real-time dis crete event systems".	$22,442 per year
1990	President's NSERC.	$2500
1991	Individual NSERC Equipment Grant, "High Performance Color Workstation".	$20,836
1991/1994	NSERC Infrastructure Grant (one of 7 investigators): "Research Central Computing Facility".	$40,000 per year
1991	NSERC Equipment Grant, "Computer/file-server upgrades" (one of 7 investigators).	$76,637
1987/90	Individual NSERC Operating Grant: "Real-time computer control of discrete event systems".	$16,000 per year
1989/1991	NSERC Equipment Grant "Research Machine Upgrade" (one of 6 investigators).	$56,000
1988/91	NSERC Infrastructure Grant "Research micro-computer workstation" (one of 4 investigators).	$33,000 per year
1989-91	NSERC Equipment Grant: "Research Machine Upgrade" (one of 6 investigators).	$56,000
1989	President's NSERC.	$3000
1986/87	President's NSERC fund.	$3000 per year

Teaching Grants

2000-2001	York Software Engineering Seed Funding (with Richard Paige)	$28,080 (2 years)
1999-2000	SCOTL teaching development grant	$2500 (1 year)

Invited Presentations

- TAP'07: Tests And Proofs12-14 February 2007 at ETH Zurich. Keynote Speaker
- Workshop for Software Engineering – Southern Ontario Universities, May 2000.
- "A Software Engineering Degree at York: How to Do It." May, 2000 (for a SCOTL grant)
- Invited panelist for "Tools for Formal Methods", 3rd IEEE Symposium on Assessment of Quality Software Development Tools, Washington D.C., June 1994.
- Invited speaker at REX Workshop on ``Real-Time: Theory in Practice'', Holland, June 1991. See [I2] in publications record.
- European Control Conference, July 1991, Grenoble, France. See [I3] in publication record.
- Invited speaker, NASA Workshop on Discrete Event Systems and Artificial Intelligence, Princeton, Nov 1990.
- Two 75 minute lectures presented to NATO Advanced Studies Institute on "The Application of Advanced Computing Concepts and Techniques to Control Engineering", Italy, Sep 1987. See [I1] in publications record.
- Waterloo, December 1994, University of Ottawa, Nov. 1994, McMaster University, October 1994.
- Invited speaker in INRS/BNR Series on Formal Methods, University of Quebec, Verdun, May 1994.
- Department of Computer Science, Carnegie Mellon University, April 1990, Department of Electrical Engineering, McGill University, November 1989, Department of Computer Science, Technische Universiteit Eindhoven, The Netherlands, September 1989. Department of Computer Science, Queens University, August 1988. Department of Systems and Computer Engineering, Carlton University, February 1988.

Professional Activities

- Senior Member, IEEE
- Faculty Fellow, IBM Centre for Advanced Studies, IBM Toronto Laboratory, 2003-2006.
- Observer membership to ECMA TC39-TG4 technical committee for the standardization of Eiffel: Analysis, Design and Programming Language.
- PC Member TOOLS'09, PC member for TOOLS'08, PC member for The International Conference TOOLS EUROPE 2007 - Objects, Models, Components, Patterns, ETH Zurich, Switzerland on 24-28 June 2007. PC member for TAP'07

- Observer membership to *European Computer Manufacturers Association* ECMA TC39-TG4 technical committee for the standardization of Eiffel: Analysis, Design and Programming Language (2004 – 2009). The current standard is ECMA-367, revision 2, June 2006.
- External Examiner for PhD thesis, "Making classes provable through contracts, models and frames", Bernd Schoeller, ETH Zurich, (supervisor Bertrand Meyer), January 2008.
- PC Member for SEFM'07, 5th IEEE International Conference on Software Engineering and Formal Methods London, UK September 10-14, 2007
- PC member for CORDIE06 (York UK) and CERTSOFT06 (FM'06, McMaster University).
- External Examiner for Piotr Nienaltowski, "Practical framework for contract-based concurrent object-oriented programming", February 2007, ETH Zurich (supervisior Bertrand Meyer).
- External Examiner for Raman Ramsin, PhD Thesis, University of York, UK, 3 July 2006 (supervisors Fiona.A.C. Polack and Richard Paige).
- York University merit award 2006-07.
- Faculty Fellow, IBM Centre for Advanced Studies, IBM Toronto Laboratory, 2003-2006.
- PC member for 3rd IEEE International Conference on Software Engineering and Formal Methods , Koblenz, Germany , September 5-9, 2005.
- PC Member 2nd IEEE Intnl. Conference on Software Engineering and Formal Methods, SEFM2004, Beijing September, 2004.
- PC Member: 2nd Workshop on Quantitative Aspects of Programming Languages QAPL 2004, Barcelona, Spain, 27-28 March 2004 - Satellite Event of ETAPS 2004.
- Program Committee for Workshop on Software Engineering and Formal Methods, Software Verification Research Centre, The University of Queensland, Brisbane, 2003.
- Program Committee for Workshop on Education and Training at TOOLS'02 Conference on Trusted Components, Formal Specifications, Eiffel & .NET, Santa Barbara, July 2002.
- NSF Panel for grants in Software Engineering. January 2000.
- Member of the Program Committee, 5th Int. AMAST Workshop on Real-Time and Probabilistic Systems (ARTS'99) in Bamberg, Germany, May 1999.
- Member of the Program Committee, Fourth AMAST Workshop on Real-Time Systems, Concurrent, and Distributed Software. Towards a mathematical transformation-based development, Mallorca, May 1997.
- Member of the Program Committee, The Third AMAST Workshop on Real-Time Systems; Models, Properties and Control, Salt Lake City, Utah, USA, March 6 - 8, 1996
- 1995: Organized the York Workshop on Industrial Strength Theorem Provers, which was held on the York Campus in the summer of 1995, using the Ariel laboratory for the tools fair.
- 1990–1997: Member of the Human Performance in Space Laboratory, Institute for Space and Terrestrial Science, Toronto.
- Refereed articles for ACM Transactions on Software Engineering, IEEE Transactions on Software Engineering, Kluwer Formal Methods in Systems Design, IEEE Transactions on Automatic Control, Real-Time Journal, Mathematics of Control Signals and Systems, IEEE Transactions on Parallel and Distributed Systems, Distributed Computing, IEEE Real-Time Systems Symposium, Hawaii International Conference on Systems Sciences, IEEE

Conference on Decision and Control and IEEE Tran. on Software Engineering Systems, ACM Transactions on Software Engineering. Reviewer for NSERC grants proposals, NSERC Collaborative Grant, NSF grant proposals, SEED program (California Institute of Technology), and NATO grant proposals. Chaired Session at 9th IEEE Real-Time Symposiums, 1988.

Publications

Lifetime Summary

Books:	1
Chapter in books:	6
Papers in refereed journals:	17 + 1 (invited)
Papers in refereed conference proceedings:	36 + 4 (invited)

Student authors are in **bold**

Book

[B1] J.S. Ostroff. Temporal Logic for Real-Time Systems. Advanced Software Development Series (Series Editor: J. Kramer), Research Studies Press (John Wiley & Sons), Taunton, England, 1989.

Miscellaneous

[M1] J.S. Ostroff. *European Journal of Control*, Volume 6 issue 6 (2000), Invited discussion of the paper by J. Zaytoon., "A Contribution to the Validation of Grafcet Controlled Systems".

Chapter in Books

[I3] J.S. Ostroff. "Visual Tools for Verifying Real-Time Systems". In Theories and Experiences in Real- Time Systems, *AMAST Series in Computing*, Vol. 2. Iowa City: World Scientific Press, 1994.

[I2] J.S. Ostroff, Synthesizing Reactive Systems, "*Real-Time: Theory in Practice*", LNCS 600, Springer- Verlag, 1992.

[I1] J.S. Ostroff, Temporal Logic and Extended State Machines in Discrete Event Control in "The application of advanced computing concepts and techniques to control engineering". *NATO ASI Series in Computer and System Sciences,* Springer-Verlag, pages 215-236, 1988.

Reprinted as Chapter in Books

[K3] J.S. Ostroff. Deciding Properties of Timed Transition Models. In Chapter 3 of *Readings in Real-Time Systems*, Y.H. Lee and C. M. Krishna (eds.), pp184-197, IEEE Computer Society Press, 1993. Reprint of [J3].

[K2] J.S. Ostroff. Formal Methods for the Specification and Design of Real-time safety Critical systems. In Chapter 2 of *Real-Time Systems*, Abstractions, Languages and Design Methodologies., K.M. Kavi (ed.), IEEE Computer Society Press Tutorial, 1992. Reprint of [J5].

[K1] J.S. Ostroff and W.M. Wonham. A Framework for Real-time Discrete Event Control. In Chapter 2 of *Real-Time Systems*, Abstractions, Languages and Design Methodologies, K.M. Kavi (ed.), IEEE Computer Society Press Tutorial, 1992. Reprints of [J2].

Refereed or Invited Journal articles

[J18] Jonathan S. Ostroff, **Faraz Ahmadi Torshizi**, **Hai Feng Huang**, and **Bernd Schoeller**, "Beyond contracts for concurrency", *Formal Aspects of Computing*, vol. 21:4, pp. 319-346, 2009. http://dx.doi.org/10.1007/s00165-008-0073-8.

[J17] **Piotr Nienaltowski** , Bertrand Meyer, and Jonathan S. Ostroff, "Contracts for Concurrency", *Formal Aspects of Computing*, vol. 21:4, pp. 304-318, 2009. http://dx.doi.org/10.1007/s00165-007-0063-2

[J16] Richard F. Paige, Phil J. Brooke, and Jonathan S. Ostroff. "Metamodel-Based Model Conformance and Multi-View Consistency Checking", *ACM Transactions on Software*

*Engineering and Methodology,*Vol. 16:3, pp. 1-49, 2007.

[J15] Jonathan S. Ostroff, Richard F. Paige, **David Makalsky** and Phillip J. Brooke. E-Tester: a Contract-Aware and Agent-Based Unit Testing Framework for Eiffel. *Journal of Object Technology*, Vol. 4:7, pp. 97-114, 2005.

[J14] **Nati Fuks**, Jonathan S. Ostroff and Richard Paige. SCOOP to Eiffel Code Generator. *Journal of Object Technology*, Vol. 3:10, pp. 143-160, 2004.

[J13] R.F. Paige and J.S. Ostroff. ERC: an Object-Oriented Refinement Calculus for Eiffel, *Formal Aspects of Computing*, Springer-Verlag, volume 16, pp. 51-79, 2004.

[J12] Richard F. Paige, Jonathan S. Ostroff and Phillip J. Brooke. Theorem Proving Support for View Consistency Checking. *L'OBJET: Software*, Databases, Networks 9(4): pp. 115-134 2003.

[J11] Richard Paige and Jonathan S. Ostroff. The Single Model Principle. *Journal of Object Oriented Technology*. Vol 1:5, pp. 63-81, 2002 (**invited contribution**).

[J10] J.S. Ostroff and R.F. Paige. The Logic of Software Design. *IEE Proceedings - Software Engineering* 147(3), pp. 73-80, 2000.

[J9] R.F. Paige, J.S. Ostroff, and P.J. Brooke. Principles of Modeling Language design, *Information and Software Technology*. No 42, pp. 665-675, 2000.

[J8] J.S. Ostroff. Composition and Refinement of Discrete Real-Time Systems. *ACM Trans. on Software Engineering Methodology*, pages 1-48, Vol. 8 Number 1, Jan. 1999.

[J7] J.S. Ostroff. A Visual Toolset for the Design of Real-Time Discrete Event Systems. *IEEE Trans. on Control Systems Technolog*y, pages 320-327, May 1997.

[J6] J.S. Ostroff. A Verifier for Real-Time Systems. *Real-Time Systems Journal*, Kluwer Academic Publishers, Volume 4, pp5–35, Massachusetts, 1992.

[J5] J.S. Ostroff. Formal Methods for the Specification and Design of Real-time safety Critical systems. *Journal of Systems and Software*, Volume 18, No. 1, pp33–60, April 1992. (Reprinted in [K2]).

[J4] J.S. Ostroff. Constraint Logic Programming for Reasoning about Discrete Event Processes. *The Journal of Logic Programming*, Volume 11, Numbers 3 & 4, pp243–270, Elsevier Science Publishing Co., N.Y., 1991.

[J3] J.S. Ostroff. Deciding Properties of Timed Transition Models. *IEEE Transactions on Parallel and Distributed Systems*, Vol. 1, No. 2, pages 170–183, April 1990. (Reprinted in [K3]).

[J2] J.S. Ostroff and W.M. Wonham. A Framework for Real-time Discrete Event Control. *IEEE Transactions on Automatic Control*, Vol. 35, No. 4, pages 386–397, April 1990. (Reprinted in [K1]).

[J1] J.S. Ostroff. A Logic for Real-Time Discrete Event Processes. *IEEE Control Systems Magazine*, Vol. 10, No. 4, pages 95–102, June 1990.

Refereed or Invited Conference and Workshop Proceedings

[C40] **Faraz Torshizi**, Jonathan S. Ostroff, Richard F. Paige and Marsha Chechik, "The SCOOP concurrency model in Java-like languages", *Communicating Process Architectures 2009* (CPA2009 at Formal Methods Week 2009), Technische Universiteit Eindhoven, (to appear, November 2009).

[C39] Jonathan Ostroff & **Faraz Ahmadi Torshizi**, "Testable Requirements and Specifications", **Invited Paper**, *Tests and Proofs 2007* (TAP 2007) , LNCS 4454, pp. 17-40, 2007.

[C38] Jonathan S. Ostroff, **Chen-Wei Wang**, **Eric Kerfoot**, and **Faraz Ahmadi Torshizi**, "Automated Model-based Verification of Object-Oriented Code", Workshop on *Verified Software: Theory, Tools, and Experiments 2006* (VSTTE 2006, part of FLoC 2006), Microsoft Report MSR-TR-2006-117, pp. 1-12, 2006.

[C37] Jonathan S. Ostroff, **Chen-Wei Wang**, **Faraz Ahmadi Torshizi**, and **Eric Kerfoot**, "ES-Verify: A Tool for Automated Model-based Verification of Object-Oriented Code", *Formal Methods 2006 Posters & Research Tools* (FM'06), McMaster University, Canada, August 2006.

[C36] Jonathan S. Ostroff, **Faraz Torshizi** and **Hai Feng Huang**, "Verifying Properties Beyond Contracts of SCOOP Programs", *International Symposium on Concurrency, Real-Time and Distribution in Eiffel-like Languages* (CORDIE'06), York UK Report YCS 405, pp4-25, 2006.

[C35] Richard Paige, Phillip J. Brooke, Jonathan S. Ostroff. Specification Driven Development of an Executable Metamodel in Eiffel. *Workshop WS5 on Software Model Engineering* (WiSME'04, 7th International Conference on the UML), Lisbon, Portugal, 2004. (This is a longer version of the extended abstract in ISSRE'04 below.)

[C34] Richard F. Paige, Jonathan S. Ostroff and Phillip J. Brooke. Agile Development of a Metamodel in Eiffel. *Supplementary Proceedings of the 15th IEEE International Symposium on Software Reliability Engineering* (ISSRE 2004), Saint-Malo, Bretagne, France, November 2004.

[C33] Jonathan S. Ostroff, **David Makalsky** and Richard Paige. Agile Specification Driven Development. *Fifth International Conference on Extreme Programming and Agile Processes in Software Engineering XP2004*, LNCS 3092, pp. 104-112, Springer-Verlag, Garmisch-Partenkirchen, Germany, June, 2004.

[C32] Richard Paige and Jonathan S. Ostroff, "Specification-Driven Design with Eiffel and Agents for Teaching Lightweight Formal Methods", *Proc. CologNet Conference on Teaching Formal Methods*, LNCS 3294, pp107-123, Springer Verlag 2004.

[C31] **Ali Taleghani** and Jonathan S. Ostroff. The BON Development Tool. *Proc. Eclipse Technology eXchange eTX/OOPSLA'03*, pp. 10-14, ACM, Anaheim CA, 2003.

[C30] R.F. Paige, J.S. Ostroff, and P.J. Brooke. A Test-Based Agile Approach to Checking the Consistency of Class and Collaboration Diagrams. *Proc. UK Software Testing Workshop*, University of York, 4-5 September 2003.

[C29] R.F. Paige, J.S. Ostroff, and P.J. Brooke. Formalising Eiffel Reference and Expanded Types

in PVS, *Proc. International Workshop on Aliasing, Confinement, and Ownership in Object-Oriented Programming* (IWACO), co-located with ECOOP'03, Darmstadt, Germany, July 2003.

[C28] R.F. Paige, **L. Kaminskaya**, J.S. Ostroff, and **J. Lancaric**. BON-CASE: an Extensible CASE Tool for Formal Specification and Reasoning, to appear in *Proc. TOOLS USA 2002*, Santa Barbara, CA, USA, July 2002 (republished in *Journal of Object Technology - JOT* - Vol. 1:3, p77-96, August, 2002).

[C27] R.F. Paige, J.S. Ostroff, and P.J. Brooke. Checking the Consistency of Class and Collaboration Diagrams using PVS, in *Proc. Fourth Workshop on Rigorous Object-Oriented Methods (ROOM4)*, London, England, British Computer Society, March 2002.

[C26] R.F. Paige and J.S. Ostroff. A Seamless Eiffel-Based Refinement Calculus for Object-Oriented Systems, in *Proc. Workshop on Refinement of Critical Systems 2002* (co-located with ZB-2002), Grenoble, France, January 2002.

[C25] R.F. Paige and J.S. Ostroff. A Proposal for a Lightweight Rigorous UML-Based Development Method for Reliable Systems, in *Proc. Workshop on Practical UML-Based Rigorous Development Methods 2001* (co-located with UML 2001), p192-207, Toronto, Canada, Lecture Notes in Informatics (GI Series), German Society, October 2001.

[C24] R.F. Paige and J.S. Ostroff. The Single Model Principle (Extended Abstract). *Fifth IEEE Symposium on Requirements Engineering, RE'01*, Toronto, August 2001.

[C23] R.F. Paige and J.S. Ostroff. Metamodelling and Conformance Checking with PVS, in *Proc. Fundamental Aspects of Software Engineering* (FASE'01), LNCS 2029, p2-16, Springer-Verlag, April 2001.

[C22] J.S. Ostroff. StateClock: a Tool for Timed Reactive Modules. *34th Annual Conference on Information Sciences and Systems*, Princeton University, March 2000 (**Invited contribution**).

[C21] R.F. Paige and J.S. Ostroff. A Comparison of the Business Object Notation and the Unified Modeling Language, *Proc. Second International Conference on the Unified Modeling Language (UML'99)*, LNCS 1723, p67-82, Springer-Verlag, October 1999. (A longer version of this paper is available as CS Technical Report 1999-03.)

[C20] R.F. Paige and J. S. Ostroff. *Developing BON as an Industrial-Strength Formal Method. Proc. FM'99*: World Congress on Formal Methods. Springer-Verlag. Sep. 1999.

[C19] Jonathan S. Ostroff and Richard Paige. Formal Methods in the Clasroom: The Logic of Real-Time Software Design. *3rd IEEE Real-Time Systems Education Workshop*, Poznan, Poland, November 1998.

[C18] R.F. Paige and J. S. Ostroff . From Z to BON/Eiffel. *13th IEEE International Conference on Automated Software Engineering*, pages 209-212. Hawaii, October, 1998.

[C17] M. Lawford, J.S. Ostroff, and W.M. Wonham. Model reduction of modules for state-event temporal logics. *IFIP Formal Description Techniques IX*. pages 263-278. Chapman and Hall, 1996.

[C16] J.S. Ostroff. The Design of Real-Time Systems Using Standard Untimed Theories. 3rd

AMAST International Workshop on Real-Time Systems. Salt Lake City. April 1996. (Invited Contribution).

[C15] J.S. Ostroff. A CASE Tool for the Design of Safty-Critical Software. Proc. of Seventh *International Workshop on Computer-Aided Software Engineering CASE'95*, IEEE Computer Society Press, pages 370-380, 1995.

[C14] J.S. Ostroff. Automated Modular Specification and Verification of Real-Time Reactive Systems. *IEEE Workshop on Industrial-Strength Formal Specification Techniques WIFT'95*, Boca Raton, Florida, April 1995.

[C13] M. Lawford, M. Wonham, and J.S. Ostroff. State Event Observers for Labelled Transition Systems. *33rd IEEE CDC*, Lake Buena Vista, Florida, Dec. 1994.

[C12] J.S. Ostroff, Systematic Development of Real-Time Discrete Event Systems, *Proc. of the ECC91 European Control Conferenc*e, pp522–533, Grenoble, France, Hermes Press, July, 1991. (Invited Contribution.)

[C11] J.S. Ostroff. Real-Time Temporal Logic Decision Procedures. *Proceedings 10th IEEE Real-Time Systems Symposium*, Santa Monica CA, pages 92-101, December 1989.

[C10] J.S. Ostroff. Synthesis of Controllers for Real-Time Discrete Event Systems. *Proceedings of the 28th IEEE Conference on Decision and Control*, Tampa, Florida, pp138-144, December 1989.

[C9] J.S. Ostroff. Mechanizing the Verification of Real-Time Discrete Systems. *The Euromicro Journal: Proceedings of Euromicro'89 — Design Tools for the 90's*, North-Holland, pp649-656, Volume 27, Number 1-5, August 89.

[C8] J.S. Ostroff. Automatic verification of timed transition models. *International Workshop on Automatic Verification Methods for Finite State Systems*, Grenoble, June 1989, LNCS 407 (editor: J. Sifakis), Pages 247–256. Springer Verlag, 1990.

[C7] J.S. Ostroff. Verification of finite state real-time distributed processes. In *Proceedings of the 9th International IEEE Conference on Distributed Computing Systems*, pp207-216, June 1989.

[C6] J.S. Ostroff. Modularity in the ESM/RTL framework, in I. M. Macleod and A.D. Heher (editors), *Software for Computer Control 1988* (selected papers from 5th IFAC/IFIP Symposium SOCOCO'88), IFAC Proceedings Series, Number 2, Pergamon Press, Oxford, pp15–20, 1989.

[C5] J.S. Ostroff and W.M. Wonham. State machines, temporal logic and control: a framework for discrete event systems. In *Proceedings of the 26th IEEE Conference on Decision and Control*, pages 681–686, Los Angeles, December 1987.

[C4] J.S. Ostroff and W.M. Wonham. Modelling, specifying and verifying real-time embedded computer systems. In *Proceedings of IEEE Computer Society Eighth Real-Time Systems Symposium*, pages 124– 132, San Jose, December 1987.

[C3] J.S. Ostroff. A framework for analyzing hard real-time systems. In *Abstracts of the IEEE Computer Society: Fourth workshop on real-time operating systems*, pages 155–160, IEEE Computer Society, July 1987.

[C2]   J.S. Ostroff and W.M. Wonham. A temporal logic approach to real time control. In *Proceedings 24th IEEE Conference on Decision and Control*, pages 656–657, Florida, Dec 1985.

[C1]   J.S. Ostroff and B.C. Moore. A guide to reduced order observer design. In *Proceedings of the 18th IEEE Conference on Decision and Control*, pages 844–848, December 1979.

Graduate student supervision

Current supervision

- Co-supervising Faraz Ahmadi Torshizi, for a PhD, with Marsha Chechik, University of Toronto

Supervisor for completed M.Sc theses

- Hai Feng Yuang. *Model Checking Concurrent Object Oriented SCOOP Programs*, December 2007. Currently working at RIM, Waterloo.
- Faraz Ahmadi Torshizi, *A Software Quality Workbench for Testable Requirements and Specifications*, August 2007. PhD candidate, University of Toronto, co-supervised by Marsha Chechik and Jonathan Ostroff.
- Ali Taleghani. *Contractual Consistency between BON Static and Dynamic Diagrams*. July 30th, 2004. Currently doing a Ph.D at University of Waterloo.
- Yan Gao. *Multi-view Consistency Checking of BON Software Description Diagrams*. July 19, 2004.
- Oleksandr Fuks. *Simple Concurrent Object Oriented Computing*. M.Sc. Thesis. July 15, 2004. Currently a Senior Consultant with Deloitte and Touche, doing Strategy and Operations, Toronto.
- Lewis Lo, Oct 1998. Modular design for Reactive Systems.
- Hak K. Ng, Sep. 1996. Model-Checking for Real-Time Safety Critical Systems.

Supervisory Committees

- Maurice Lebon (supervisor Vassilos Tzerpos), "A fine-grained model for design pattern detection in Eiffel Systems", M.Sc thesis, September 2007.
- Amir Ghadiri (supervisor Vassilos Tzerpos), "Understanding Java Applications Using Frequency of Method Calls", Augsut 2007.
- Daniel Orner (supervisor Scott McKenzie), December 2006.
- Alexei Lapouchnian (supervisor Yves Lesperance) M.Sc. July 2004.
- Darius Antia (supervisor Franck van Breugel) M.Sc. Feb. 26, 2004
- Zhihua Wen (supervisor Vassilos Tzerpos), M.Sc., July 2003.
- Liliya Kaminskaya (supervisor Richard Paige), M.Sc, May 2001.
- Edwin Law (supervisor Tim Brecht). Graduated with an M.Sc in 1998. Also on thesis examination committee.
- Tore Urnes (supervisor N. Graham), Ph.d September 1998.

- Cassandra Lui (supervisor E. Arjomandi), graduated with an M.Sc. in 1994.
- Eric Harley, graduated with an M.SC in 1993 (supervisor Z.Stachniak).
- Behrad Ghazizdah (supervisor Z. Stachniak), and on thesis committee. April 20, 1999.

Thesis examination committees
- Anton Belov, "Propositional Satisfiability: Algorithms and Applications", supervisor: Zbigniew Stachniak, July 2008
- Mark Shtern, "Software Clustering", supervisor: Vassilios Tzerpos, May 2008.
- Vladimir Blagojevic, co-supervisors: Franck van Breugel and Eshrat Arjomandi, "A simulator for peer- to-peer overlay algorithms", June 29, 2004.
- Xiyun Wang (supervisor Yves llesperance), M.Sc, May 2001
- Gekun Song (supervisor Nick Graham) graduated with an M.Sc. in July 1995.

Graduate Courses Taught

2009 CSE6411 Programming Logic for Complex Systems
2008 CSE6442 Object Oriented Software Construction
2005 COSC6442 Object Oriented Software Construction
2004 COSC6442 Object Oriented Software Construction
2003 COSC6442 Object Oriented Software Construction
2002 COSC6442 Object Oriented Software Construction
2001 COSC6442 Object Oriented Software Construction
1999 COSC6442. Object Oriented Software Construction (taught for IBM/Congese)
1998 COSC5342 (Real-Time Systems Practice).
1998 COSC6311 (Programming Logic for Complex Systems).
1994 COSC5422 (Programming Logic for Complex Systems).
1993 COSC5422 (Programming Logic for Complex Systems).
1993 ELE1643 (Special Topics in Control II: Formal Methods in Real-Time Control), Systems Control Group, Dep. of Electrical Engineering, University of Toronto.
1991 COSC5422 (Programming Logic for Complex Systems).
1990 COSC5422 (Programming Logic for Complex Systems).
1989 COSC5422 (Programming Logic for Complex Systems).

Undergraduates supervision and teaching

Undergraduate Research Projects supervised (cosc4080).
- 1986: Jeff Klein (3 credits)
- 1987: Raj and Klein (3 credit joint project).
- 1988/89: Mia Tein (6 credits), Carl Gruden (two 3 credit projects), Tim Field (3 credit winter 89), John Dangov (6 credits).
- 1989/90: Sai La Ma and Wai Ling Sik (6 credits), Olaf van Breman (3 credits winter of 1990).

- 1995: Mehnoush Banaei (3 credits)
- 1998: Victor Ng (Eiffel and Real-Time Train Laboratory, 3 credits).
- 1998: Bill Krappolos (Java and real-Time Train Laboratory, 3 credits).
- 2000: Lisa Lescard (BON drawing tool).
- Winter 2001: Husein Ali: "*Graphics libraries under .NET*".
- Winter 2001: Eli Dominitz: "*Documenting programs with BON*".
- Fall 2002: Jonathan Amir. *Building a web-based information system for professors and students on top of the .NET.*
- Fall 2002: David Makalsky: "*Extreme Programming and Unit Testing in Eiffel*".
- Winter 2002: Ali Taleghani, .NET based graphical framework for BON.
- Winter 2002: Quincy Prentice, Concurrent train scheduling algorithms in the train laboratory.
- Spring 2002: Jundong Chen, parsing Eiffel contracts and converting them to PVS mode.
- Fall 2005: Chen-Wei Wang, Verifying Eiffel code with Perfect theorem prover
- Fall 2006: George Spanogiannopoulos, ESpec weld-in for EiffelStudio.
- Winter 2006: Nif Shaft, An investigation into DBC-like languages such as Spec# and comparsion to Eiffel.
- Winter 2008: Supervised two projects on JSCOOP for Java concurrency (Kevin Doyle & Jenna Lau).

Other
- Summer 2006, Chen-Wei Wang, NSERC USRA and and summer intern, Eric Kerfoot (both doing a PhD at Oxford university, currently)
- Summer intern 2008, Simon Hudon, currently doing a Masters at ETH

Courses taught

COSC1020 Intro. to Computer Science I
COSC1030 Intro. to Computer Science II
COSC2001 Intro. to Theory of Computation
MATH2090 Intro. to Mathematical Logic
CSE3341 Intro. to Program Verification
CSE3311 Software Design
CSE4351 Real-Time Systems Theory
CSE4352 Real-Time Systems Practice
CSE4312 Software Engineering Requirements
CSE6411 Programming Logic Complex Systems
CSE6342 OO Software Construction
ELE1643 Special Topics in Control, U of T

- 1986/87   COSC3020, COSC4100, COSC1020/30 (Winter Summer).
- 1987/88   Course director/lecturer in COSC1020 and COSC1030, COSC3020, COSC4100.
- 1988/89   COSC3020, COSC4100, course director for COSC4080, wrote monograph.

- 1989/90   COSC3020, COSC5422, MATH2090.
- 1990/91   COSC4351, MATH2090 (and the graduate course COSC5422).
- 1991/92   COSC4351, MATH2090 (and the graduate course COSC5422).
- 1992/93   On Sabbatical.
- 1993/94   COSC2001, COSC4351 (and the graduate course COSC5422).
- 1994/95 COSC4352, COSC3111 (and the graduate course COSC5422).
- 1995/96 COSC4352, COSC3111.
- 1996/97 COSC3111.
- 1997/98 COSC4352 (and graduate course COSC5422)
- 1998/99 COSC4352 and COSC331
- 2000/01 COSC3331 (course director two sections)
- 2001/02 COSC3311 (course director 3 sections); COSC6342
- 2002/03 COSC3311 (course director; 3 sections)
- 2003/04 COSC3311
- 2004/05 COSC3311 (course director 2 sections)
- 2005-06 COSC3311 (course director + 2 sections)
- 2007-07   On sabbatical
- 2007-08 CSE4312 and CSE3311
- 2008-2009 CSE4312 and CSE3311

Service Contributions

Contributions to the departmental curriculum
- **1987—1992:** Together with Prof. Michael Jenkin, proposed and implemented a revised COSC curriculum including: the need for new undergraduate Unix/Workstation equipment (wrote original Ariel equipment and lab proposal); proposals for changes to the first year curriculum; more mathematics prerequisites for COSC majors including calculus, linear algebra and logic (which I later taught); a second year theory of computation course (which I later taught); the idea of core 3rd year courses; curriculum for Space and Communications Science students (with 3 new course proposals). Helped with the design of the new graduate program for an M.Sc.
- **1995-2000**: Proposed a new curriculum for the undergraduate Logic and Discrete Mathematics courses MATH1090 and MATH2090 for all our undergraduate majors. The students learn the ideas and concepts of logic in MATH1090, and then apply the logic again to discrete mathematics in MATH2090 (instead of the traditional orthogonal courses in logic and discrete mathematics). After much work, including a few years of field testing, the new curriculum was accepted by the Departmental curriculum committee in May 2000 (this was later revised again). This work was done in conjunction with Professors Alan Dow, Rick Ganong, and Eli Brettler (in the department of mathematics) and Prof. George Tourlakis.

- **2004-2009**: Developed the Software Development stream (now approved) including new courses such as a 4th year Project Course CSE4090, Software Engineering Requirements (CSE4312) which is also a required course in Computer Engineering and Software Engineering Testing (CSE4313). In the spring of 2009, developed a proposal for a CEAB approved Sofware Engineering Program, in consultation with engineering faculty at York and colleagues at Waterloo and the University of Toronto.
- Developed the real-time train laboratory for use in the 4th year real-time courses with the help of Bill Krappolos, Victor Ng, and Quincy Prentice.
- Introduced and taught 8 new courses including CSE2001 Intro. to Theory of Computation; MATH2090 Intro. to Mathematical Logic; CSE3311 Software Design; CSE4351 Real-Time Systems Theory; CSE4352 Real-Time Systems Practice; CSE4312 Software Engineering Requirements; CSE6411 Programming Logic Complex Systems; CSE6342 OO Software Construction

Contribution to Technical Support in the department and at York university
- 1996-2000: appointed to the position of computing coordinator, the position that overseas all our computer laboratories, servers and workstations both for undergraduate teaching and research. The technical team at that time was unsuitable and had to be replaced. Ulya Yigit (now appointed to manage the team) and I ran all the labs and workstations, until such time as we were able to create new professional positions for our team. Under the chair, Prof. Patrick Dymond and later Michael Jenkin, created suitable positions and an appropriate organizational structure within York professional constraints. Interviewed applicants and appointed four highly qualified individuals in a competitive market. In addition to general purpose laboratories, the technical team developed a specialized teaching environment and laboratories (such as robotics, digital devices, embedded systems, and virtual reality etc.) requiring a variety of hardware devices and over 400 specialized software packages on a variety of operating systems. This new team is highly regarded within the department for both our teaching and research mandates.
- Represented the department at the York level ACUC committee for all computing equipment and services. Recommended that ACUC adopt a standard equipment proposal format similar to new course proposals — this recommendation was accepted by ACUC. Appointed to Dean's Committee to investigate ways to improve efficiency of Support Staff in the Faculty of Science. Dean's Advisory Committee on Computing. University Networking Taskforce for building York University's netcentric structure. York Y2Kteam (under VP Phyllis Clark).
- In 2008, helped the chair of the department, Amir Asif, to structure and justify our team to meet faculty requirements.

Contribution to T&P
- Chair of the departmental T&P committee from 2003-2007.
- Drafting of the initial departmental T&P unit criteria required by new university standards, accepted by department in September 2003. Developed the departmental

tenure website to help candidates and file preparation committees with the new procedures. Most of the unit criteria appear in the latest revision developed by Michael Jenkin.
- Chair of a Glendon special purpose T&P committee.

Contribution to hiring of faculty members
- On the departmental appointment & executive committee from 1993 to 2000 when we hired many new faculty members for our graduate program.
- 2007-2008: Chair of Biomedical search committee for CSE, which ended with a successful hire.

Committees

1987/88
- Member of the Curriculum Committee.
- Authored report on the need for a course in Logic for CS undergraduates. Proposed a curriculum for this course. These suggestions were accepted and the course MATH2090 is a prerequisite for all CS undergraduates.
- Helped the chair in selection of new equipment — yetti upgrade, bigfoot, apollo, Mac II, AI lab, Sun workstations.
- Member of Faculty of Science Nominations Committee.

1988/89
- Member of Faculty of Science Nominations Committee.
- Member of the Curriculum Committee.
- Member of subcommittees for curriculum review (theory, software, AI). Proposed (with others) a "core" curriculum with additional mathematics prerequisites (calculus and linear algebra), and a second year theory course. These proposals were accepted with minor modifications.
- Co-author, report on first year curriculum review, included suggestions for labs and new equipment.
- Co-author, Undergraduate Equipment Proposal.
- Helped chair design the curriculum for new Space and Communication programme. Proposed three new courses Real-time theory/practice, and Control Systems.
- Represented chair on NSERC summer awards committee.

1989/90
- Member of the Curriculum Committee.
- Member of Faculty of Science Nominations Committee.
- Design and layout of Real-Time Laboratory.
- Faculty System Advisor.

- Represented CS at ACUC meetings. Recommended that ACUC adopt a standard equipment proposal format similar to new course proposals — this recommendation was accepted by ACUC.
- On the CS/CCS RFP committee to select and plan for 40 undergraduate workstations.
- Together with the chair, developed procedures for the supervision and evaluation of technical support staff.
- Initiated subcommittee on "Academic Environment" under Gunnar Gottshalks to develop a teaching environment on the undergraduate workstations.
- Member of Technical Implementation and Policy subcommittees for undergraduate workstations.
- Wrote ACUC proposal for first year COSC majors for UNIX/X11 environment. Helped Peter Cribb on 1520/30 ACUC proposal for microlaboratory.
- Spent a substantial amount of time in personnel problems — the dismissal of unsatisfactory technical support person, and in the hiring of a new System Coordinator.
- Supervised technical support staff directly while searching for a new System Coordinator.
- Co-author of report to argue for the "Need for additional support staff".
- Initiated meetings to discuss NSERC equipment and infrastructure grants for 1991 — wrote and compiled infrastructure grant.
- Participated in planning for new equipment for first year students.

1990/91
- Faculty System Advisor.
- Member of ACUC.
- Member of Nominations Committee of the Faculty of Science.
- Member of curriculum committee.

1991/1992
- Faculty System Advisor.
- Member of ACUC.
- Member of Nominations Committee of the Faculty of Science.
- Participated (with Peter Cribb) on proposal for NEXT Workstation lab Glade.
- Member of Nominations Committee of the Faculty of Science.
- Appointed to Dean's Committee to investigate ways to improve efficiency of Support Staff in the Faculty of Science.
- Member of the Tenure and Promotions Committee of the Dept. of Computer Science.

1992/93 — on sabbatical

1993/94
- Appointments and Executive
- Promotion and Tenure
- Graduate Executive
- Faculty of Science Committees: Research Committee

- External Committees: FGS Council

1994/95
- Appointments and Executive
- Graduate Executive
- Computing Support/Research Labs
- Faculty of Science Committees: Research Committee
- External Committees: FGS Council

1995/96
- Appointments and Executive
- Ariel committee (chair)
- Tech systems/Labs (chair)
- Graduate executive
- Promotion and tenure
- Faculty Computing Coordinator
- Faculty of Science Committees: Research Committee
- External Committees: FGS Council

1996/97
- Appointments and Executive
- Ariel committee (chair)
- Tech systems/Labs (chair)
- Graduate executive
- Promotion and tenure
- Faculty Computing Coordinator
- Faculty of Science Committees: Dean's Advisory Comm. on Computing

1997/98
- Appointments and Executive
- Ariel committee (chair)
- Tech systems/Labs (chair)
- Promotion and tenure
- Faculty Computing Coordinator
- Dean's Advisory Comm. on Computing
- University Networking Taskforce

1998/99
- CS Appointments and Executive
- Ariel committee (chair)
- Tech systems/Labs (chair)
- Promotion and tenure
- Faculty Computing Coordinator

- Dean's Advisory Comm. on Computing
- University Networking Taskforce
- University Technical Personnel Shortage Committee

1999/2000 sabbatical

2000/01
- Appointments and Executive
- Ariel committee (chair)
- Tech systems/Labs (chair)
- Promotion and tenure
- Faculty Computing Coordinator
- York Y2Kteam (under VP Phyllis Clark)
- University Fair in Sep. 2000 and Sep. 2001

2001/02
- Department of Computer Science Tenure and Promotions Committee (*Chair*).
- Computing Coordinator.
- Prism Committee (Chair)
- Tech Systems/Labs (Chair)

2002/03
- Department of Computer Science Tenure and Promotions Committee (*Chair*). Development of Departmental Guidelines.
- Computing Coordinator.
- Prism Committee (Chair)
- Tech Systems/Labs (Chair)
- FPAS Computer Committee.
- Developed initial draft of Software Engineering Stream

2003/04
- Department of Computer Science Tenure and Promotions Committee (*Chair*). Completion of departmental T&P criteria, acceptance by department in September 2003, and development of departmental tenure website for candidates and file preparation committees.
- Computing Coordinator. Reorganization of technical team.
- Prism/Tech Committee (*Chair*)
- Developed Software Engineering degree, now accepted by department and faculty.

2004/05
- Department of Computer Science Tenure and Promotions Committee (*Chair*). Revisions to departmental T&P criteria.
- Computing Coordinator.

2005/06

- Department of Computer Science Tenure and Promotions Committee (*Chair*)
- Computing Coordinator.

2006/07 Sabbatical.

2007-08

- Chair of Biomedical search committee for CSE, which ended with a successful hire
- Worked under the chair of CSE to develop recommendations for Technical Team duties.
- Member of the Departmental Executive Committee, Research Committee and Graduate Executive Committee
- Chair of a Glendon Faculty Adjudication Committee

2008-09

- Executive committee, Graduate Executive committee and Research Committee
- Developed a proposal for a CEAB approved Software Engineering program, in consultation with engineering faculty at York and colleagues at Waterloo and U of T. This report was submitted to the Dean, FSE for further investigation.
- Developed a report on the organization and role of our technical support team as part of discussions with the Dean, FSE, on restructuring technical support for the whole faculty.

2009-10

- Executive committee, Research Committee, Computer Engineering Program
- FPC chair for Jarek Gryz