Kenneth C. Sevcik

CURRICULUM VITAE

(April, 2004)

A. BIOGRAPHICAL INFORMATION

1. Personal

Name:	Kenneth C. SEVCIK
Date of Birth:	May 7, 1944
Citizenship:	Dual, Canadian and American
Home Address:	99 Harbour Square, PH01 Toronto, Ontario M5J 2H2
Home Phone:	(416) 203-7058
University Address:	Department of Computer Science 40 St. George St., BA 4260 University of Toronto Toronto, Ontario M5S 2E4
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2. Degrees Held

B.S. Mathematics, Stanford University (1966)
S.M. Information Sciences, University of Chicago (1970)
Ph.D. Information Sciences, University of Chicago (1971)

3. Employment

Present:

Professor, Department of Computer Science, cross-appointed to the Department of Electrical and Computer Engineering, University of Toronto, 1980-present

Member, Computer Systems Research Group, University of Toronto, 1971-present

Appointed to Graduate School, July 1, 1972

Date of tenure award, July 1, 1975

Previous positions held:

Director, Computer Systems Research Institute, University of Toronto, 1995 - 1997

Chairman, Department of Computer Science, July 1990 to September 1992.

Visiting Scientist, Centre for Advanced Studies, IBM Toronto Lab (1996-1998 & 2000-2003)

Associate Professor, Department of Computer Science and cross-appointed to Department of Electrical Engineering, University of Toronto, 1975-1980.

Chairman, Computer Systems Research Group, University of Toronto, 1975-77.

Assistant Professor, Department of Computer Science, University of Toronto, 1971-75.

Lecturer, Committee on Information Sciences, University of Chicago, 1971.

Instructor, Department of Computer Science, Illinois Institute of Technology, 1970-71.

4. Honours

Winner of 2nd ACM Sigmetrics Achievement Award, for "long-lasting influential contributions to the theory or practice of computer/communication system performance evaluation." [from the ACM Sigmetrics Web Page: http://www.sigmetrics.org/AchievementAward/description.html]

Fellow of the ACM, elected in 1997

ITAC Award for Excellence in Research, Information Technology Association of Canada, value \$50,000, 1990-92.

IFIP Silver Core Award, Int. Fed. of Information Processing Societies, 1989

5. Professional Affiliations and Activities

Chairman, International Federation of Information Processing Societies, Working Group on Computer System Modelling, 1985-89.

Member, International Federation of Information Processing Societies, Working Group on Computer System Modelling, 1978-present.

Member of the Board of Directors of ACM SIGMETRICS, 1983-87.

Editor, *Information Processing Letters*, 1979-84.

Editor, *Performance Evaluation*, 1980-90.

Associate CIPS Editor, *INFOR*, 1974-84.

CIPS Editor, *INFOR*, January-September 1975.

Co-editor (with E.D. Lazowska), Special Issue on "Computer System Performance", *IEEE Trans. on Computers 38*, 12 December 1989. (10 of 115 submissions were accepted.)

Guest Editor, Special Issue on "Multiprocessor Scheduling", *Performance Evaluation Review, 26*, 4, March 1999.

General Chairman, PERFORMANCE '80: The Seventh International Symposium on Computer Performance Measurement, Modelling and Evaluation, Toronto, May 1980.

Program Chairman, 1988 ACM SIGMETRICS Conference, Santa Fe, May 1988.

Co-Program Chairman (with H. Erdogmus and K. Lyons), 1997 CASCON Conference, Toronto (November, 1997).

Co-organizer (with E.D. Lazowska), NSF Workshop on Scientific Computing Performance Analysis, sponsored by the Division of Advanced Scientific Computing of NSF, held at the National Center for Atmospheric Research, Boulder, Colorado, August 1989.

Program Committee Member for the following sixty-one conferences in the Performance Evaluation, Database, Distributed Processing and Data Mining areas:

- 9th ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining, Washington, D.C., USA, August, 2003.
- ACM Sigmetrics '03, San Diego, USA, June, 2003
- 3rd SIAM Int. Conf. on Data Mining (SDM '03), San Francisco, May, 2003
- Int. Conf. on Data Mining (ICDM '02), Maebashi City, Japan, Dec. 2002
- Performance '02 Conference, Rome, Italy, Sept. 22-27, 2002
- 16th Ann. Int. Symp. on High Performance Computing Systems and Applications (HPCS '02), Moncton, New Brunswick, June 17-19, 2002
- 2nd SIAM Int. Conf. on Data Mining (SDM '02), Crystal City, Va., April, 2002
- Int. Conf. on Data Mining (ICDM '01), San Francisco, 2001
- Performance '01 and ACM Sigmetrics 2001, Boston, U.S.A., June, 2001
- 2nd Int. Conf. On Software Performance (WOSP '00), Ottawa, Ontario, September, 2000
- VLDB 2000, Cairo, September, 2000
- ACM Sigmetrics 2000 Conf., Santa Clara, California, June, 2000
- Performance '99, Istanbul, Turkey, August, 1999
- ACM Sigmod '99, Philadelphia, May, 1999
- IPPS Workshop on Job Scheduling Strategies for Parallel Processing, Puerto Rico, April, 1999
- 1st Int. Workshop on Software Performance (WOSP '98), Santa Fe, October, 1998
- 10th Int. Conf. on Modelling Techniques and Tools for Computer Performance Evaluation, Palma de Mallorca, September, 1998

IEEE Int. Computer Performance and Dependability Symposium (IPDS '98), Durham, September, 1998
Performance '98, Madison, Wisconsin, June, 1998
12th Ann. Symp. on High Perf. Comp. (HPCS '98), Edmonton, May, 1998.
IPPS Workshop on Job Scheduling Strategies for Parallel Processing, Florida, April, 1998
IPPS Workshop on Job Scheduling Strategies for Parallel Processing, Geneva, April, 1997
Performance '96, Lausanne, October, 1996
Europar '96, Lyon, August, 1996
ACM Sigmetrics, Philadelphia, May, 1996
IPPS Workshop on Job Scheduling Strategies for Parallel Processing, Honolulu, April, 1996
4th Int. Workshop on Modelling, Analysis and Simulation of Computer and Telecommunication Systems, San Jose, February, 1996
Performance '95, Ottawa, May, 1995
ACM Sigmetrics, Nashville, May, 1994
7th Int. Conf. on Modelling Techniques and Tools for Computer Performance Evaluation, Vienna, May, 1994
Performance '93, Rome, September 1993
Int. Conf. on Supercomputing '93, Tokyo, July, 1993
ICPADS '92 Int. Conf. on Parallel and Distributed Systems, Taiwan, December, 1992
VLDB '92, Vancouver, August 1992
ACM Sigmetrics and Performance '92, Newport, 1992.
Int. Conf. on the Performance of Distributed Systems and Integrated Comm. Networks, Kyoto, 1991
PERFORMANCE '90, Edinburgh, 1990
4th Int. Conf. on Data Communication Systems and Their Performance, Barcelona, 1990
9th Int. Conf. on Distr. Computing Systems, Newport Beach, 1989
Int. Sem. on the Performance of Distributed and Parallel Systems, Kyoto, 1988
7th ACM SIGACT-SIGOPS Symp. on the Principles of Distributed Computation, Toronto, 1988
8th SCCC Int. Conf. on Computer Science, Santiago, Chile, 1988
3rd Int. Conf. on Data Communication Systems and Their Performance, Rio de Janeiro, 1987
PERFORMANCE '87, Brussels, 1987
Modelling Techniques and Performance Evaluation Software, Paris, 1987
ACM Sigmetrics, Banff, 1987
VLDB, Kyoto, 1986
ACM Sigmetrics, Austin, 1985
2nd Int. Conf. on Data Communication Systems and Their Performance, Zurich, 1984
ACM PODS, Waterloo, 1984
Modelling and Performance Evaluation Methodology, Paris, 1983
ACM Sigmetrics, Minneapolis, 1983
ACM PODS, Atlanta, 1983
ACM PODCS, Ottawa, 1982
ACM Sigmetrics, Seattle, 1982
1st Int. Conf. on Data Communication Systems and Their Performance, Paris, 1981
ACM Sigmetrics, Las Vegas, 1981
Distributed Computing Systems, Paris, 1981
VLDB, Montreal, 1980
ACM SIGMOD, Boston, 1979
PERFORMANCE '79, Vienna, 1979

B. **ACADEMIC HISTORY**

6.a Research Endeavours

Performance Analysis of computer systems; use of queueing network models to select equipment, propose configuration changes, and predict performance; design of scheduling algorithms and pricing policies.

File structures for information management; implementation techniques for information systems; allocation and access problems in memory hierarchies.

Design and analysis of computer networks and distributed data bases; concurrency control techniques; parallel processing systems.

Information representation techniques in file systems, database systems, and neural networks; Concise approximate representations of databases to provide quick approximate answers to queries.

Design of parallel and distributed operating systems; resource allocation and scheduling issues; access control mechanisms to assure privacy and security.

b. Research Awards (as principal investigator)

Defence Research Board of Canada, 1971-75, for computer system performance analysis (approx. $5,000/year).

IBM, 1972-76, for studying medical applications of computers (approx. $10,000/year).

IBM, 1977-82 (through the U of T UPDATE campaign) for developing medical applications of computing (approx. $30,000/year).

IBM, 1982, Study on Distributed Processing, Co-investigator with two others ($40,000/year).

ITRC Research Grant, Information Technology Research Centre, 1987-1991 (approx. $30,000/year).

NSERC Strategic Grant, with R.C. Holt and four others, HECTOR shared memory multiprocessor project, $250,000 per year, 1988-1991.

ITRC Research Grant (with eight co-investigators), "Parallel Applications on Multiprocessors", 1991-93 (approx. $152,000/year).

ITRC Research Grant (with three co-investigators), "Efficient Parallel Computing", 1993-95 (approx. $150,000/year).

NSERC Strategic Grant, with Z. Vranesic and three others, "The NUMAchine Multiprocessor Project", 1993-97 ($1,250,000 over four years).

ITRC Research Grant (with four co-investigators), "Parallelism on Workstations", 1995-97 (approx. $220,000/year).

IBM Partnership Award, 1996-1999 ($US 40,000 per year).

IBM Graduate Student Support Grant (for N. Koudas), 1996 to 1998 ($25,000 per year).

NSERC Equipment Grant (with many co-investigators), "Research Computing Facility for Internet-Based Information Services", 1999 ($ 144,601).

ORDCF Grant (with many co-investigators), "BCE Emergis University Labs", 1999-04 ($ 11,300,000).

CITO Research Grant (PI: E. Fiume with four co-investigators), "Interactive Realistic Computer Graphics", 1999-01 ($215,000 per yr.).

Bell Canada University Labs Infrastructure Grant (PI: J. Mylopoulos with five co-investigators), "Knowledge Management Laboratory", 2000-03 ($168,900 per yr.)

CITO Research Grant (PI: R. Miller with A. Mendelzon and K.C. Sevcik), "Structure Discovery in Large Datasets", 2000-02 ($140,000 per yr.).

MITACS Research Grant, "Towards Interactive Data Mining", ($15,000 per year, 2002-2004).

NSERC Individual Operating and Discovery Grants, continuously 1973 to 2008, "Extracting Useful Information from Large Data Sets", 2003-2008 ($61,110 per year).

c. Patents awarded during past 5 years

(applied for) "Streaming Server", Canadian Application Nos. 2,331,474, 2,335,521, and 2,335,540; U.S. Serial No. 10/054,699, Inventors: S. V. Anastasiadis, K. C. Sevcik and M. Stumm

C. **SCHOLARLY AND PROFESSIONAL WORK**

7.a Refereed Publications (Articles)

K.C. Sevcik, Optimal Processor Scheduling when Service Times are Hyperexponentially Distributed and Preemption Overhead is not Negligible, *Proc. of MRI Symposium on Computer Communications Networks and Teletraffic*, vol.22, Polytechnic Institute of Brooklyn (April 1972), 89-99.

K.C. Sevcik, J.W. Atwood, M.S. Grushcow, R.C. Holt, J.J. Horning and D. Tsichritzis, Project SUE as a Learning Experience, *Proc. AFIPS Fall Joint Computer Conference*, vol.41 (December 1972), 331-37.

K.C. Sevcik, Scheduling for Minimum Total Loss Using Service Time Distributions, *Journal of the ACM 21*, 1 (January 1974), 66-75.

K.C. Sevcik, Computer System Modelling and Analysis: Assessing Some Common Assumptions, *Proc. Seventh Hawaii International Conference on Systems Sciences* (January 1974), 37-39.

K.C. Sevcik and D. Tsichritzis, Authorization and Access Control Within Overall System Design, *Proc. Int. Workshop on Protection in Operating Systems*, IRIA Paris (August 1974), 211-24.

E.D. Lazowska and K.C. Sevcik, Scheduling in Systems with Two Scarce Resources, *Proc. ACM National Conference* (November 1974), 66-73.

K.C. Sevcik and D. Tsichritzis, Operating Systems Design with Security as an Objective, *INFOR*, 13, 2 (June 1975), 159-74.

K.C. Sevcik and E.D. Lazowska, System versus Program Performance Objectives in a Simple Closed Queueing Network, *Proc. CIPS Conference*, Regina (June 1975), 468-85.

H. Schumacher and K.C. Sevcik, The Synthetic Approach to Decision Table Conversion, *CACM*, 19, 6 (June 1976), 343-51.

E. Ozkarahan, S.A. Schuster and K.C. Sevcik, Performance Evaluation of a Relational Associative Processor, *TODS 2*, 2 (June 1977), 175-95.

K.C. Sevcik, Approximations for Priority Scheduling Disciplines in Queueing Network Models, *Proc. IFIP '77 Conference* (August 1977), 565-70.

R.J. Dubien, H.D. Covvey, K.C. Sevcik and E.D. Wigle, A Data Base System Implementation Providing Data Independence for Medical Applications, *Proc. MEDINFO 77*, Toronto (August 1977), 87-94.

H.D. Covvey, R.J. Dubien, K.C. Sevcik and E.D. Wigle, An Information System for Clinical Cardiovascular Research: Yesterday and Today, *Proc. MEDINFO 77*, Toronto (August 1977), 657-61.

K.C. Sevcik, A. Levy, S. Tripathi and J. Zahorjan, Improving Approximations of Aggregate Queueing Network Subsystems, *Proc. of International Conference on Computer Systems Measurement, Modelling and Evaluating*, Yorktown Heights (August 1977), 1-22.

S.K. Tripathi and K.C. Sevcik, The Influence of Multiprogramming Limit on Interactive Response Time in A Virtual Memory System, *Proc. of Sigmetrics Conference*, Washington, D.C. (November 1977), 121-30.

R.J. Dubien, H.D. Covvey, K.C. Sevcik and E.D. Wigle, DIET - A Data Base System Providing Data Independence, *Proc. ACM National Conference* (1977).

E. Ozkarahan and K.C. Sevcik, Architectural Features for Performance Enhancement of a Data Base Machine, *TODS 2*, 4 (December 1977), 297-316.

K.C. Sevcik and A. Furtado, Complete and Compatible Sets of Update Operations, *Proc. International Conference on Management of Data*, Milan, Italy (June 1978).

E. Gelenbe and K.C. Sevcik, Analysis of Update Synchronization for Multiple Copy Data Bases, *IEEE-TC C-28*, 10 (October 1979), 737-747, and *Proc. of 3rd Berkeley Workshop on Distributed Data Management and Computer Networks*, August 1978 (69-90).

Z.S. Su and K.C. Sevcik, Optimal Preemptive Scheduling Algorithms for Dynamic Scheduling Problems, *Operations Research 26*, 5 (Sept./Oct. 1978), 836-44.

J. Zahorjan, J.N.P. Hume and K.C. Sevcik, A Queueing Model of a Rotational Position Sensing Disk Subsystem, *INFOR 10*, 3 (October 1978), 199-216.

E.D. Lazowska and K.C. Sevcik, Exploiting Decomposability to Approximate Quantiles of Response Times in Queueing Networks, *Proc. Second International Symposium on Operating Systems*, IRIA, Paris (October 1978).

K.C. Sevcik and I. Mitrani, The Distribution of Queueing Network States at Input and Output Instants, *JACM 28*, 2 (April 1981), 358-371, also in *Fourth Int. Symp. on Modelling and Performance Evaluation of Computer Systems*, Vienna (February 1979).

M. Kienzle and K.C. Sevcik, A Methodical Approach to Modelling of Computer Systems, *Fourth Int. Symp. on the Modelling and Performance Evaluation of Computer Systems*, Vienna (February 1979), 3-27.

M. Kienzle and K.C. Sevcik, Survey of Analytic Queueing Network Models of Computer Systems, *Proc. of Conference on Simulation, Measurement and Modelling of Computer Systems*, Boulder, Colorado (August 1979), 113-29.

I. Mitrani and K.C. Sevcik, Evaluating the Tradeoff Between Centralized and Distributed Computing, *Proc. of Conference on Distributed Computing* (October 1979), Huntsville, Alabama, 520-28.

A. Furtado and K.C. Sevcik, Permitting Updates Through Views of Data Bases, *Information Systems*, 4 (1979), 269-83.

K.C. Sevcik, Queueing Networks and Their Computer System Applications: An Introductory Survey, in *Deterministic and Stochastic Scheduling*, ed. by M.A.H. Dempster, J.K. Lenstra and A.H.G. Rinnooy Kan, Riedel Publ. Co., Dordrecht, Holland (1982).

K.C. Sevcik, Data Base Performance Prediction Using An Analytic Model, invited paper, *Proc. 7th Int. Conf. on Very Large Data Bases*, (September 1981), 182-198.

J. Zahorjan, K.C. Sevcik, D.L. Eager and B.I. Galler, Balanced Job Bound Analysis of Queueing Networks, *C.ACM 25*, 2 (February 1982), 134-141, and presented at the ACM Sigmetrics Conf., Las Vegas (1981).

D.L. Eager and K.C. Sevcik, Performance Bound Hierarchies for Queueing Networks, *ACM TOCS 1*, 2 (May 1983), 99-115, and presented at the ACM Sigmetrics Conf., Seattle (1982).

J. Zahorjan, B.J. Bell and K.C. Sevcik, Estimating the Service Time Requirement of Accesses to Files with Blocked Records, *IPL 16*, 5 (10 June 1983), 249-52.

D.L. Eager and K.C. Sevcik, Achieving Robustness in Distributed Database Systems, *ACM TODS 8*, 3 (September 1983), 354-81.

K.C. Sevcik, Comparison of Concurrency Control Methods Using Analytic Models, in *INFORMATION PROCESSING 83*, Ed. R.E.A. Mason, Elsevier Science Publishers, 1983, 847-58. (Invited paper at IFIP '83, Paris.)

J. Nievergelt, H. Hinterberger and K.C. Sevcik, The Grid File: An Adaptable, Symmetric Multikey File Structure, *ACM TODS* (March 1984), 38-71.

D.L. Eager and K.C. Sevcik, Analysis of an Approximation Algorithm for Queueing Networks, *Performance Evaluation 4*, (November 1984), 275-84.

D.L. Eager and K.C. Sevcik, Bound Hierarchies for Multiple Class Queueing Networks, *J.ACM 33*, 1 (January 1986), 179-206.

K.C. Sevcik, Workload Characterization for the Space Station Data Network, in *Workload Characterization of Computer Systems and Computer Networks*, ed. G. Serazzi, North Holland (1986), 147-57.

K.C. Sevcik and M.J. Johnson, Cycle Time Properties of the FDDI Token Ring Protocol, *IEEE-TSE*, SE-13, 3 (March 1987), 376-85, and presented at the ACM Sigmetrics Conf., Raleigh (1986).

E.D. Lazowska, J. Zahorjan and K.C. Sevcik, Computer System Performance Evaluation Using Queueing Network Models, *Annual Review of Computer Science*, vol.1 (1986), 107-37.

J. Zahorjan, E.D. Lazowska and K.C. Sevcik, The Use of Approximations in Production Performance Evaluation Software, *Proc. of Int. Workshop on Modelling Techniques and Performance Evaluation*, Paris (March 1987), 271-81.

X-N. Tan and K.C. Sevcik, Reduced Distance Routing in Single-Stage Shuffle-Exchange Interconnection Networks, *Proc. 1987 ACM Sigmetrics Conf.*, Banff (May 1987), 95-110.

I. Casas-Raposo and K.C. Sevcik, Structure and Validation of an Analytical Performance Predictor for System 2000 Databases, *INFOR 26*, 4 (1988), 286-307, also in *Proc. CIPS Edmonton '87 Conf.* (November 1987), 145-56.

X-N. Tan, K.C. Sevcik and J-W. Hong, Optimal Routing in Shuffle-Exchange Networks for Multiprocessor Systems, *Proc. IEEE COMP EURO '88*, Brussels (April 1988), 255-64.

K.C. Sevcik and X-N. Tan, An Interconnection Network that Exploits Locality of Communication, *Proc. 8th Int. Conf. on Distributed Computing Systems*, San Jose, California (June 1988), 74-85.

I. Casas-Raposo and K.C. Sevcik, A Buffer Management Model for Use in Predicting Overall Database System Performance, *Proc. 5th Int. Conf. on Data Engineering*, IEEE (February 1989), 463-69.

K.C. Sevcik, Characterizations of Parallelism in Applications and Their Use in Scheduling, *Proc. 1989 ACM Sigmetrics and PERFORMANCE '89 Conf.* (May 1989), 171-80.

K. Harzallah and K.C. Sevcik, An Analytical Model of the Augmented Data Manipulator Network, *Proceedings of Supercomputing Symposium '91*, Fredericton (June 1991), 323-29.

W. Hyslop and K.C. Sevcik, MOSES: A Model for Predicting Relational Database System Performance, *Proc. CMG Canada '91 Conference*, Toronto (June 1991).

J. Rolia and K.C. Sevcik, Fast Performance Estimates for a Class of Generalized Stochastic Petri Nets, *Proc. 6th Int. Conf. on Modelling Techniques and Tools for Computer Performance Evaluation*, Edinburgh (September 1992), 31-47.

K.C. Sevcik, Application Scheduling and Processor Allocation in Multiprogrammed Parallel Processing Systems, invited paper, *Performance Evaluation 19*, (1994), 107-140.

K.C. Sevcik and S. Zhou, Performance Benefits and Limitations of Large NUMA Multiprocessors", *Performance Evaluation 20*, (1994), 185-205, [also appeared in *Proc. Performance '93 Conference*, Rome (September 1993)].

H. Li, S. Tandri, M. Stumm, and K.C. Sevcik, Locality and Loop Scheduling on NUMA Multiprocessors, *Proc. 22nd Int. Conf. on Parallel Processing, Vol. II*, 1993, 140-147.

H. Li and K.C. Sevcik, NUMACROS: Data Parallel Programming on NUMA Multiprocessors, *Proc. of the 4th Symp. on Exper. with Distrib. and Multiprocessor Systems (SEDEMS IV)*, Los Angeles, September, 1993, 247-263.

K. Harzallah and K.C. Sevcik, Hot Spot Analysis in Large Scale Shared Memory Multiprocessors, *Proc. of Supercomputing '93 Conf.*, Portland, Oregon, November, 1993, 895-905.

K. Harzallah and K.C. Sevcik, Evaluating Memory System Performance of a Large Scale NUMA Multiprocessor, (invited paper), *Proc. of 2nd Conf. on Modelling and Simulation of Computer and Telecommunications Systems (MASCOTS '94)*, Durham, North Carolina, February, 1994, 18-29.

H. Li and K.C. Sevcik, Exploiting Cache Affinity in Software Cache Coherence, *Proc. of 8th ACM Int. Conf. on Supercomputing*, Manchester, July, 1994.

H. Li and K.C. Sevcik. Parallel Sorting by Over-Partitioning, *Proc. 6th Annual ACM Symp. on Parallel Algorithms and Architectures (SPAA '94)*, Cape May, New Jersey, June, 1994, 46-56.

L. Boguslavsky, K. Harzallah, A. Kreinin, K.C. Sevcik, and A. Vainshtein, Optimal Strategies for Spinning and Blocking, *Journal of Parallel and Distributed Computing 21*, 2 (May 1994), 246-54.

L. Boguslavsky, A. Lyakhov, and K.C. Sevcik, Analysis of Large Multiprocessor Systems by the Asymptotic Method, *Automation and Remote Control 56*, 2 (1995).

L. Boguslavsky, A. Lyakhov, and K.C. Sevcik, Performance Evaluation of Client-Server Distributed Information Systems, *Proc. International Conference on Local and Metropolitan Communication Systems (LAN and MAN)*, Kyoto, Japan (December 1994), 445-59.

V.K. Chaudhri, V. Hadzilacos, J. Mylopoulos, and K.C. Sevcik, Quantitative Evaluation of a Transaction Facility for a Knowledge Base Management System, *Proc. of 3rd ACM Int. Conf. on Information and Knowledge Management*, Gaithersberg, Maryland (December 1994).

E.W. Parsons and K.C. Sevcik, Multiprocessor Scheduling for High-Variability Service Time Distributions, *Proc. IPPS Workshop on Job Scheduling Strategies for Parallel Processing*, Lecture Notes in Computer Science, Volume 949, Springer-Verlag, (April, 1995), 127-144.

H. Sandhu and K.C. Sevcik, An Analytic Study of Dynamic Hardware and Software Cache Coherence Strategies, *Proc. Performance '95 and ACM Sigmetrics Conf.*, Ottawa (May 1995), 167-177.

E. Smirni, E. Rosti, G. Serazzi, L.W. Dowdy, and K.C. Sevcik, Performance Gains From Leaving Idle Processors in Multiprocessor Systems, *Proc. 24th Int. Conf. on Parallel Processing, Vol. III*, (August, 1995), 203-210.

J.A. Rolia and K.C. Sevcik, The Method of Layers, *IEEE-TSE*, SE-21, 8 (August 1995), 689-700.

K. Harzallah and K.C. Sevcik, Predicting Application Behaviour in Large Scale Shared-memory Multiprocessors, *Proc. Supercomputing '95*, San Diego (December 1995).

N. Koudas and K.C. Sevcik, Spatial Join Processing and Data Placement in Parallel Spatial Databases, *Proc. 2nd Int. Conf. on Applications of Databases*, San Jose (December 1995).

E.W. Parsons and K.C. Sevcik, Coordinated Allocation of Memory and Processors in Multiprocessors, *Proc. 1996 ACM Sigmetrics Conference*, Philadelphia (May 1996), 57-67.

M. Faloutsos, R. Pankaj, and K.C. Sevcik, Multicasting in Directed Graphs, 18th Biennial Symposium on Communications (June 1996), 29-32.

K.C. Sevcik and N. Koudas, Filter Trees for Managing Spatial Data over a Range of Size Granularities, *Proc. VLDB '96*, Mumbai, India (September 1996), 16-27.

E.W. Parsons and K.C. Sevcik, Benefits of Speedup Knowledge in Memory-Constrained Multiprocessor Scheduling, *Performance Evaluation 27 & 28*, Special Issue for Performance '96 Conf., Lausanne (October 1996), 253-72.

D. Feitelson, L. Rudolph, U. Schwiegelsohn, K.C. Sevcik, and P. Wong, Theory and Practice in Parallel Job Scheduling, *Proc. Workshop on Job Scheduling Strategies for Parallel Processing*, 1997 International Parallel Processing Symposium, Springer-Verlag Lecture Notes in Computer Science #1291 (April, 1997), 1-34.

E.W. Parsons and K.C. Sevcik, Implementing Multiprocessor Scheduling Disciplines, *Proc. Workshop on Job Scheduling Strategies for Parallel Processing*, 1997 International Parallel Processing Symposium, Springer-Verlag Lecture Notes in Computer Science #1291 (April, 1997), 166-92.

N. Koudas and K.C. Sevcik, Size Separation Spatial Join, *Proceedings of ACM SIGMOD Conf.* (May, 1997), 324-35.

M. Faloutsos, R. Pankaj, and K.C. Sevcik, Multicast Routing with Heterogeneous Quality, The Fourth IEEE Workshop on the Architecture and Implementation of High Performance Communication Systems (HPCS'97) Chalkidiki, Greece (June 1997).

M. Faloutsos, R. Pankaj, and K.C. Sevcik, Bounds for the On-line Multicast Problem in Directed Graphs, The 4th International Colloquium on Structural Information and Communication Complexity SIROCCO '97 (July, 1997), 81-97.

S.V. Anastasiadis and K.C. Sevcik, Parallel Application Scheduling on Networks of Workstations, *Jour. of Par. and Distr. Comp. 43,* Special Issue on Workstation Clusters and Network-based Computing, (1997), 109-24.

E.W. Parsons, M. Brorsson, and K.C. Sevcik, Modelling Performance of Distributed Virtual Shared Memory Systems for the Next Decade, *IBM Systems Journal, 36,* 4 (1997), 527-49.

E. Rosti, E. Smirni, L.W. Dowdy, G. Serazzi, and K.C. Sevcik, Processor Saving Scheduling Strategies for Multiprocessor Systems, *IEEE Trans. on Computers, 47,* 2 (February, 1998), 178-89.

N. Koudas and K.C. Sevcik, High Dimensional Similarity Joins: Algorithms and Performance Evaluation, *Proc. 14th Int. Conf. on Data Engineering*, IEEE (February, 1998), 466-75. [Won "Best Paper" award.]

H.V. Jagadish, N. Koudas, S. Muthukrishnan, V. Poosala, K.C. Sevcik, and T. Suel, Optimal Histograms with Quality Guarantees, *Proc. 24th Int. Conf. on Very Large Data Bases*, New York, August, 1998, 275-86.

H. Wang and K.C. Sevcik, Experiments with Improved Mean Value Analysis Algorithms, *Proc. 10th Int. Conf. on Modelling Techniques and Tools for Computer Performance Evaluation*, Palma de Mallorca, September, 1998, 280-91.

K. C. Sevcik, C. U. Smith and L. Williams, Performance Prediction Techniques Applied To Electronic Commerce Systems, in *Electronic Commerce Technology Trends: Challenges and Opportunities*, editted by W.-D. Kou and Y. Yesha, IBM Press, 1999, 299-314.

N. Koudas and K.C. Sevcik, High Dimensional Similarity Joins: Algorithms and Performance Evaluation, *IEEE Trans. on Knowledge and Data Engineering, 12* (1), Jan.-Feb. 2000, 3-18. [Extended version of the ICDS '98 conference paper.]

H. Wang and K.C. Sevcik, Experiments with Improved Mean Value Analysis Algorithms, *Performance Evaluation, 39*, 2000, 189-206. [Extended version of conference paper in *Proc. 10th Int. Conf. on Modelling Techniques and Tools for Computer Performance Evaluation.*]

S. Anastasiadis, K.C. Sevcik, and M. Stumm, Disk Striping Scalability in the Exedra Media Server, *Proc. ACM/SPIE Multimedia Computing and Networking (MCMN 2001)*, San Jose, California (January, 2001), 175-187.

S. Anastasiadis, K.C. Sevcik, and M. Stumm, Modular and Efficient Resource Management in the Exedra Media Server, *Proc. Usenix Symp. on Internet Techniques and Systems (USITS '01)*, San Francisco, California (March 2001), 25-36.

S. Anastasiadis, K.C. Sevcik, and M. Stumm, Server-Based Smoothing of Variable Bit-Rate Streams, *Proc. ACM Multimedia Conf. (MM '01)*, Ottawa, Canada (October 2001), 147-158.

H. Wang and K.C. Sevcik, Utilizing Histogram Information, *Proc. IBM CASCON*, Toronto, November, 2001, pp. 106-120.

H. Wang and K.C. Sevcik, Solution Properties and Convergence of an Approximate Mean Value Analysis Algorithm, *Performance Evaluation Review*, published by ACM Sigmetrics, vol. 29, no. 4 (Spring, 2002).

S. Anastasiadis, K.C. Sevcik, and M. Stumm, Maximizing Throughput in Replicated Disk Striping of Variable Bit-rate Streams, *Proc. 2002 USENIX Annual Technical Conference (USENIX '02)*, Monterey, California, USA (June, 2002), 191-204.

M. Faloutsos, R. Pankaj, and K.C. Sevcik, The Effect of Asymmetry on the On-line Multicast Routing Problem, *Int. Jour. of Foundations on Computer Science*, vol. 13, no. 6 (2002), 889-910.

C. Garcia Arellano and K.C. Sevcik, Quantization Techniques for Similarity Search in High-dimensional Data Spaces, *Proc. 20th British Natrional Conference on Databases*, Coventry, U.K., July 2003, Springer-Verlag, pp. 75-94.

P. Andritsos, P. Tsaparas, R.J. Miller, and K.C. Sevcik, Clustering Catagorical Data Based on Information Loss Minimization, *Proc. HDMS '03 the 2nd Hellenic Data Management Symposium*, Athens, Greece (September 2003).

H. Wang and K.C. Sevcik, A Multidimensional Histogram for Selectivity Estimation and Fast Approximate Query Answering, *Proc. IBM CASCON '03*, Toronto (October 2003), pp. 246-60.

P. Andritsos, P. Tsaparas, R. Miller and K. C. Sevcik, LIMBO: Scalable Clustering of Categorical Data, *Proc. EDBT 2004 – 9th Int. Conf. on Extending Database Technology*, Lecture Notes in Computer Science no. 2992, Springer Verlag, Heraklion, Greece, March, 2003.

b. Books

E.D. Lazowska, J. Zahorjan, G.S. Graham and K.C. Sevcik, *Quantitative System Performance: Computer System Analysis Using Queueing Network Models*, Prentice-Hall, 1984.

c. Special Issue Edited

E.D. Lazowska and K.C. Sevcik, editors, Special issue on "Computer System Performance", *IEEE Trans. on Computers 38*, 12 (December 1989). (10 of 115 papers were accepted.)

8. Non-Refereed Publications

K.C. Sevcik, Measurement and Authorization in the SUE System, *Proc. of Session '72*, Canadian Information Processing Society (June 1972), 313201-10.

K.C. Sevcik, Lessons on Security from an Operating System Design Project, *Proc. of IBM Data Security Forum*, Denver, Colorado (September 1974), Proceedings published by IBM.

K.C. Sevcik, Exact Probabilities of a Voter's Paradox Through Seven Issues and Seven Judges, *ICR Quarterly Report #22*, Institute for Computer Research, University of Chicago (August 1969).

K.C. Sevcik and M.M. Klawe, Operational Analysis versus Stochastic Modelling of Computer Systems, *Proc. of Computer Science Statistics: 12th Annual Symposium on the Interface*, Waterloo, Canada (May 1979), 177-84.

S.K. Tripathi and K.C. Sevcik, Analytic Models of Computer Systems, International Dedication Seminar on Recent Advances in Mathematics and its Applications, Banaras Hindu University (December 1976).

K.C. Sevcik, G.S. Graham and J. Zahorjan, Configuration and Capacity Planning in a Distributed Processing System, *Proc. 16th CPEUG Meeting* (October 1980), 165-171.

J.C.S. Lai, H.D. Covvey, K.C. Sevcik and E.D. Wigle, The Quality Control of Data in a Clinical Database System - the Patient Identification Problem, *Proc. of 5th Annual Symposium on Computer Applications in Medical Care* (November 1981).

G.S. Graham, E.D. Lazowska and K.C. Sevcik, Components of Software Packages for the Solution of Queueing Network Models, *Proc. 18th CPEUG Meeting* (October 1982), 183-87.

K.C. Sevcik and E.D. Lazowska, Generating Queueing Network Models from High-Level System Specifications, *Proc. of the 15th CMG Conference*, San Francisco (December 1984), 103-07.

D. Barbara, W. DuMouchel, C. Faloutsos, P. Haas, J. Hellerstein, Y. Ioannidis, H. Jagadish, T. Johnson, R. Ng, V. Poosala, K. Ross, and K. Sevcik, The New Jersey Data Reduction Report, *Data Engineering, 20*, 4 (December 1997).

9.a Submitted for Publication

¡none¿

9.b Manuscripts in Preparation

H. Wang and K.C. Sevcik, Histograms Based on the Minimum Description Length Principle.

S. V. Anastasiadis, K. C. Sevcik, and M. Stumm, Scalable and Fault-tolerant Support for Variable Bit-rate Data in the Exedra Streaming Server.

S. V. Anastasiadis, K. C. Sevcik, and M. Stumm, Shared Buffer Smoothing of Variable Bit-rate Streams.

9.c Unpublished Manuscripts

K.C. Sevcik and D. Unruh, A Case Study in Predicting TSO Response Times (1976).

R. Ehrlich, E. Gelenbe and K.C. Sevcik, A Performance Model of a Remote Card Input Station (1978).

E.D. Lazowska and K.C. Sevcik, Approximating Response Time Distributions in Queueing Networks (1978).

S.K. Tripathi and K.C. Sevcik, Error Analysis of Approximate Solution Techniques for Queueing Network Models of Computer Systems: An Empirical Approach (1980).

K.C. Sevcik and P.J. Denning, Execution of Queueing Network Analysis Algorithms on a Data Flow Computer Architecture (1985).

E.D. Lazowska and K.C. Sevcik, Report on the Workshop on Scientific Computing Performance Analysis, sponsored by NSF (August 1989).

K.C. Sevcik, et al., Report of the Vice-Presidential Task Force on Large Scale Computation, University of Toronto (November 1989).

J. Downey (chair), P. Bassett, G. Delisle, D.T. Lynch, and K.C. Sevcik, Panel on Software Engineering Report, submitted to AUCC and CCPE (July, 2000).

10. Papers presented at meetings

"Computers in Medical Practice", sponsored by the Canadian Medical Association, April 1973.

"Operational Analysis Versus Stochastic Modelling of Computer Systems", Symposium on Computer Performance Evaluation, University of Maryland, March 1979.

"Data Base System Performance Evaluation", IFIP W.G. 7.3 Workshop, Toronto, 1980, and ORSA/TIMS Conference, Colorado Springs, November 1980.

"Evaluation of Concurrency Control Techniques", ORSA/TIMS Conference, Chicago, April 1983, and IFIP W.G. 7.3 Workshop, Maryland, 1983.

"Analytical Models of Parallel Processing Systems", Fall Joint Computer Conference, Dallas, November 1986.

"Impact of NUMA Architectures on Parallel Database Systems", CASCON '93 Conference, Toronto, October, 1993.

11. Invited Lectures

"Scheduling for Minimum Total Loss Using Service Time Distributions", presented at Carnegie-Mellon University, IBM Research Center at Yorktown Heights, Pennsylvania State University, Purdue university, University of Toronto and UCLA, January to March 1971.

"A Comparative Evaluation of Computer Scheduling Disciplines", presented at RAND Corporation, University of Denver and Cornell University, February 1975.

"Analytic Techniques for Computer System Performance Evaluation", presented at University of Saskatchewan and University of Alberta, February 1976.

"Choosing Among Update Control Policies for Distributed Data Bases", presented at University of Wisconsin and University of Waterloo, May to June 1979.

"Operational Analysis Versus Stochastic Modelling of Computer Systems", presented at IBM Research Center, Yorktown Heights, June 1979.

"A Hierarchical Model for Evaluating Database System Performance", presented at IRIA Laboria (Paris, France), University of Rennes, Carleton University and University of Maryland, March 1978 to November 1979.

"Computer System Performance Prediction", presented at the University of Maryland and Xerox Palo Alto Research Center, Concordia University, University of Western Ontario, Hewlett-Packard (Palo Alto) and York University, November 1979 to November 1981.

"Database Performance Prediction Using Analytic Models", University of Wisconsin, April 1982, Stanford University, March 1985, and University of Paris-South, December 1984.

"Queueing Network Models of Computer System Performance: Techniques for Obtaining Bounds on Solutions", Cornell University and University of Washington, April 1982.

"Analyzing Queueing Network Models of Computer Systems: A Tutorial on the State of The Art", IMACS Conf., Montreal, August 1982, 18th CPEUG Conf., Washington, D.C., October 1982. (Won "Best Tutorial" Award), and Southwestern Region CMG Meeting, Los Angeles, February 1985.

"Evaluation of Concurrency Control Techniques", McMaster University, October 1983.

"Using Queueing Network Models for Computer System Performance Prediction", Queen's University, February 1984.

"A Survey of Dynamic Hashing Schemes", University of Alberta, November 1984, University of Saskatchewan, November 1984, University of California at Santa Barbara, November 1984, and North Carolina State University, May 1984.

"Modelling Multiple-CPU Environments for Load Balancing", Ontario Computer Measurement Group Meeting, May 1986.

"Analytic Models of Parallel Processing Systems", University of Maryland, March 1986, Los Alamos National Lab., March 1987.

"Reduced-Distance Routing in Shuffle-Exchange Interconnection Networks", Los Alamos National Lab., March 1987, North Carolina State University, May 1988, 8th SCCC Int. Conf. on Computer Science, July 1988.

"Computer System Performance Prediction Using Analytic Models", NCR TIES Workshop on Computer System Performance Evaluation, November 1987, Institute for Information Management Tutorial Week, September 1987, 8th SCCC Int. Conf. on Computer Science, July 1988.

"Computer System Performance Prediction Using Queueing Network Models", Distinguished Lecturer Series, Dept. of Computer Science, University of Wisconsin, January 1989, and Distinguished Lecturer Series, Dept. of Computer Science, Purdue University, March 1989.

"Performance Prediction for Parallel Computing Systems", Distinguished Lecturer Series, Dept. of Computer Science, University of Arizona, January 1990, and Distinguished Lecturer Series, Dept. of Computer Science, University of California at San Diego, March 1990, and Colloquium, Centrum Voor Wiskunde en Informatica, Amsterdam, March 1990.

"Evaluating Computer System Performance Using Analytic Models", MIT Laboratory for Computer Science (April 1991).

"Processor Allocation Strategies for Multiprogrammed Multiprocessor Systems", Bell Northern Research, Ottawa (August 1992).

"Design Considerations and Performance Evaluation of the HECTOR NUMA Shared Memory Multiprocessor", Institut Fuer Informatik, Universitat Erlangen, Germany, July, 1992.

"Predicting and Improving Performance in NUMA Shared-Memory Multiprocessors", Dept. of Computer Science, Univ. of Alberta, March, 1995.

"Predicting and Improving Performance in NUMA Shared-Memory Multiprocessors", Dept. of Computer Science, Univ. of Saskatchewan, March, 1995.

"Concise Informative Database Summaries", Distinguished Lectures Series, Univ. of California at Santa Barbara, April, 1999.

"Concise Informative Accessible Database Summaries", Distinguished Speaker Series 2000, Faculty of Computer Science, Dalhousie University, Nova Scotia, July, 2000.

"Concise Informative Accessible Database Summaries", Zhejiang University, Hangzhou, China, September, 2002.

"Lessons of Thirty-five Years", at the 2004 ACM Sigmetrics Conference, June 15, 2004, New York, in connection with receiving the ACM Sigmetrics Achievement Award.

D. **LIST OF COURSES**

12.a Undergraduate Courses Taught

CSC 148F	Introduction to Computing (1971-73,80-82,85-86,88-89)
CSC 149F	Programming Techniques and Style (1983)
CSC 150F	Introduction to Computer Science (1987)
CSC 158S	Computer Applications (1972-74,80,82-84,86-87,89-90)
CSC 160S	Applications of Computer Science (1988)
CSC 228F	Programming Techniques for Data Processing (1974)
∗∗CSC310S	Information Theory (2003)
CSC 378S	Information Structures (1978)
CSC 378S	Data Structures and Algorithm Analysis (1998)
CSC 458S	Architecture of Distributed Computer Systems (1980-81)
∗CSC470F	Computer System Modelling and Analysis (1993,1995-2000)
∗CSC474S	Computer Based Simulation Models (1975-78,82)

b. Graduate Courses Taught

∗CSC2206F	Computer System Modelling (1972-97)
∗∗CSC2508F	File Structures (1973-83)
∗CSC2508S	Information: Quantification, Representation and Manipulation (1986-90, 1994, 1998-2000, 2002)

∗Performance Evaluation of File Structures and Data Base Systems, Catholic University of Rio de Janeiro, and Univ. of Zurich (1977-78)
∗Computer System Modelling, Stanford University (1984)
∗Performance Modelling of Software Systems (with Jerome Rolia), IBM Toronto Lab (1996)

∗ originated courses
∗∗ substantially revised courses

Theses Supervised

Summary: Ph.D. Theses - 22 completed, 4 in progress
M.Sc. Theses - 48 completed, 1 in progress
B.A.Sc. Theses - 7 completed

Ph.D. Theses

Completed:

Su, Zaw-Sing, “Dynamic Scheduling with Preemption: A Deterministic Approach” (1975)

Lazowska, Edward D., “Characterizing Service Time and Response Time Distributions in Queueing Network Models of Computer Systems” (1977)

Tripathi, Satish K., “On Approximate Solution Techniques for Queueing Network Models of Computer Systems” (1979)

Chang, Ernie, “Decentralized Algorithms in Distributed Systems” (1979)

Zahorjan, John, “The Approximate Solution of Very Large Queueing Network Models” (1980)

Christodoulakis, Stavros, “Estimating Selectivities in Data Bases” (1981)

Galler, Bruce, “Concurrency Control Performance Issues” (1982)

Eager, Derek, “Bounding Algorithms for Queueing Network Models of Computer Systems” (1983)

Serry, Alaa, “An Analytical Approach to Modelling IMS Systems” (1984)

Walstra, B. Robbe J., “Iterative Analysis of Networks of Queues” (1985)

Casas-Raposo, Ignacio, “PROPHET: A Layered Analytical Model for Performance Prediction of Database Systems” (1986)

Hyslop, William, “Performance Prediction of Relational Database Management Systems” (1991)

Rolia, Jerome, “Predicting the Performance of Software Systems” (1991)

Li, Hui, “Software Approaches to Memory Latency Reduction for Scalable Shared-Memory Multiprocessors” (1995)

Harzallah, Karim, “A Practical Performance Evaluation Methodology for Large-scale Multiprocessors” (1996)

Parsons, Eric, “Coordinated Allocation of Processors and Memory in Multiprocessor Operating Systems” (1997)

Zilio, Daniel, “Physical Database Design Decision Algorithms and Concurrent Reorganization for Parallel Database Systems” (1998)

Koudas, Nikolaos, “Fast Algorithms for Spatial and Multidimensional Joins” (1998)

Faloutsos, Michalis, “The Greedy, The Naive, and The Optimal Multicast Routing: From Theory to Internet Protocols” (1998) [co-supervised with A. Banerjea]

Anastasiadis, Stergios, “Supporting Variable Bit-Rate Streams in a Scalable Continuous Media Server” (2001) [co-supervised by Michael Stumm]

Nguyen, U. T., “Congestion Control for Multipoint Communications in ATM Networks” (2003) [co-supervised by Irene Katzela]

Wang, Hai, “Concise and Accurate Data Summaries for Fast Approximate Query Answering” (2003)

In Progress:

Truta, Cosmin, “(compression of video stream information)”

Yu, Xiaohui, “(accurate histograms of large data sets)”

Zhou, Qingqing, “(theoretically optimal search structures)” [co-supervised with J. Mylopoulos]

Gao, Chaofa, “¡topic not yet chosen¿”

M.Sc. Theses

Completed:

Tran, Tuan Khan, “The Response Time Distributions of Some Computer Scheduling Disciplines” (1972)

Lester, Eleanor A., “The Investigation of Service Time Distributions” (1973)

Lazowska, E.D., “Scheduling Multiple Resource Computer Systems” (1974)

Lam, Lettice Hung, “Comparison of Three Logical Views of Data in Hospital Information Systems” (1974)

Schumacher, Helmut, “The Synthesis of Optimal Decision Trees from Decision Tables” (1974)

Tripathi, Satish, K., “Approximate Models of Multi-Programmed Computer Systems with Paging” (1975)

Lum, Wade C., “Data Collection, Reduction and Analysis of Computer System Measurement” (1975)

Cheung, Stephen Chun-Lap, “A Computer Method for Cyclical Scheduling of Shift Workers” (1975)

Shen, Helen, “The Effect of Interarrival Times in Scheduling” (1975)

Spirk, Franz, “An Analysis of Different Deadlock Control Schemes” (1975)

Lin, Hing-Lung, “Closed Queueing Network Models: Computational Algorithms with Application to Computer System Performance Evaluation” (1976)

Dubien, Ronald J., “Extending a Commercial Database System to Provide Data Independence” (1977)

Kienzle, Martin G., “Measurements of Computer Systems for Queueing Network Models” (1977)

Kidd, Robert John, “A Common Model for Multi-Key Access Performance Evaluation” (1978)

Lai, Chi Sang, “Patient Identification and Record Linkage” (1979)

Au, Matthew, “Some Properties of Queueing Network Models” (1981)

Bell, Barbara, “Database System Performance Prediction: The First Two Levels of a Multi-level Modelling Framework” (1981)

Casas-Raposo, Ignacio, “Analytic Modelling of Database Systems: The Design of a System 2000 Performance Predictor” (1981)

Eager, Derek, “Robust Concurrency Control in Distributed Databases” (1981)

Bobrowski, Christoph, “The Principle of Maximum Entropy in Some Computer System Modelling Problems” (1983)

Vopalensky, Jan, “The Scheduling Problem in Distributed Computer Systems: Its Definition and Partial Solution” (1983)

Martin, Vickie, “SPIRAL ONE - Dynamic Hashing Scheme” (1983)

Aldwinkle, John, “A Scheduler for UNIX” (1984)

Gelblum, Michael, “Some Results of the File Placement Problem” (1984)

Rolia, Jerome, “Performance Estimates for Multi-tasking Software Systems” (1987)

Coatta, Terry, “Queueing Networks With State-Dependent Service Rates” (l987)

Clarke, Graeme, “Performance Properties of the FDDI Token Ring” (1987)

MacLean, Richard, “Performance Characteristics of the FDDI Token Ring Priority Mechanism” (l989)

Lee, Jei-Min, “Concurrency Control Through Hierarchical Synchronization” (l989)

LeBel, Edgar, “Sparse Undistributed Memory: A Local Storage Model for Pattern Matching” (1990)

Cupit, Brian, “Parse Tree Based Revision Control and Program File Compression” (1990)

Verma, Raj, “A Metric Approach to Isolated Word Recognition” (1991)

Srikantiah, Nandini, “Processor Scheduling in Hierarchical NUMA Multiprocessors” (1991)

Bacque, Ben, “SUPERMON: Flexible Hardware for Performance Monitoring” (1991)

Marwood, Simon, “Performance Comparison of Concurrency Control Techniques in Partitioned Systems” (1993)

Wu, Chee Shong, "Processor Scheduling in Multiprogrammed Shared Memory Computer Systems" (1993)

Larson, Johan, "Domain-Partitioned Parallel Sort-Merge Join" (1995)

Tam, Anita, "Communication Requirements of Multimedia Workloads" (1996)

Wang, Corina, "An Adaptive Rendering and Display Model for Networked Applications" (1996) [co-supervised with M. van de Panne]

Anastasiadis, Stergios, "Parallel Application Scheduling on Networks of Workstations" (1996)

Soreanu, Gabriel, "A Comparative Study of Interconnection Networks in Large-Scale Multiprocessors" (1996)

Wang, Hai, "Approximate MVA Algorithms for Solving Queueing Network Models" (1997)

Gibbons, Richard, "A Historical Application Profiler for Use by Parallel Schedulers" (1997)

Kennedy, Brett, "Declustering Spatial Data for Range and Join Queries" (1999)

Piegaze, Peeter, "Incorporating Time Into Computer Cartography: A Digital Atlas of History" (2000)

Lu, Jingjing, "Fast Algorithms for Distance-Based Spatial Queries" (2001)

Garcia Arellano, Christian, "Quantization Techniques for Similarity Search in High-dimensional Data Spaces" (2002)

Tjoie, Wei, "Joint Distribution Analysis of Large Data Sets" (2003)

Pham, Hang, "Accurate Two-dimensional Histograms for Fast Approximate Answers to Queries on Real Data" (2004)

In Progress:

Dong, Junfeng, "(search structures in high-dimensional spaces)" (2002-now)

B.A.Sc. Theses

Completed:

Soong, David, "Simulation of a Computer System Model with Internal Priority CPU Job Queues" (1973)

Ho, Joseph, "Analysis of CPU Idle Time when Successive Service Times are Dependent" (1973)

Walker, Melville Ross, "Comparative Study of Data Base Management Systems" (1975)

Hui, Peter C.K., "Empirical Investigation of Decision Tables" (1975)

Djahani, Pouyan, "A Comparative Performance Evaluation of Multiprocessor Architectures using Simulation Methods" (1994)

Vu, Thien, "A Comparison of CSMA/CS and Token Ring" (1996)

Chiu, Thomas C.-H., "Performance Analysis on ECF's Central Packet Switching Hub" (1997)

d. Other Teaching and Lectures

"Computer System Performance and Modelling", Three-day short courses presented to Canada Systems Group, 1975.

"Computer System Performance Prediction for System Tuning and Configuration Planning", Five-day short course presented in the Institute in Computer Science, University of California at Santa Cruz (four times), to FEDSIM, Department of the Air Force, Washington, D.C. (twice), to Bell Laboratories (twice), Data General Corp., and to Western Institute for Computer Science, Stanford University (nine times).

"Computer System Performance Evaluation", Three-day short course presented through Advanced Management Research International in Toronto, Newport Beach, Washington, D.C., Boston, Seattle and Montreal between September 1979 and December 1980.

"Queueing Networks and their Computer System Applications", NATO Advanced Study Course on Deterministic and Stochastic Scheduling, Durham, England, July 1981.

"A Hierarchical Model for Database System Performance Prediction", Tutorial at ACM Sigmetrics Conf., Austin, August 1984.

"Computer System Capacity Planning Using MAP", about 12 times in various cities for Amdahl Corporation, 1984-88.

"Modelling High Performance Computer Systems", Tutorial at ACM Sigmetrics Conf., Boulder, Colorado, May 1990.

"Scheduling Algorithms for Multiprogrammed Parallel Processing Systems", Tutorial at ACM Sigmetrics Conf., San Diego, May 1991.

"Advanced Computer System Modelling", three-day short course given to industrial audiences, San Diego (April 1989), Santa Fe (September 1989), San Diego (January 1990), Santa Fe (May 1991), and Santa Fe (April 1994).

"Performance Prediction for Hardware and Software Systems", graduate course presented at IBM Toronto Lab through the Consortium for Graduate Education in Software Engineering, with J. Rolia (Spring, 1996).

E. **ADMINISTRATIVE POSITIONS**

13.a Within the University

Chairman, Computer Systems Research Group, 1975-77

Chairman, Curriculum Committee, Department of Computer Science, 1973-75

Member, Curriculum Committee, Department of Computer Science, 1971-73

Coordinator, CSC148F/CSC158s, 1972-74

Colloquium Coordinator, Department of Computer Science, 1978-80

Member, Ph.D. Admissions Committee, Department of Computer Science 1978-1990

Chairman of the Graduate Committee, Department of Computer Science, 1980-84, 1985-1990

Member, UTCS Review Committee, 1982-84

Member, Supercomputer Review Committee, 1986

Chairman, Vice-Presidential Task Force on Large Scale Computation, January-November 1989

Member, Faculty Promotions Committee, Faculty of Arts and Science, 1989-1990

Chairman, Department of Computer Science, 1990-92

Presidential Nominee, Connaught Committee, 1990-93

Member, Board of Directors of the Information Technology Research Centre of Ontario (1990-92, 1995-97)

Member, Board of Directors of Communications and Information Technology Ontario (1997-99)

Member, Advisory Board, IBM Centre for Advanced Studies (1990-1992)

Member, Board of Directors of the Samuel Beatty Fund (1990-92)

Member, Faculty Council, Faculty of Management Studies (1990-1992)

Member, Policy (and Budget) Committee, Faculty of Arts and Science (1990-1992)

Member, Academic Board (1994-98)

Member, Planning and Budget Committee of Academic Board (1994-98)

Vice-Chair, Planning and Budget Committee of Academic Board (1997-8)

Member, Task Force on the Electronic Library (1994-95)

Member, Advisory Committee on Academic Computing (1996)

Chair, AAC Subcommittee on High Performance Research Computing (1996)

Director, Computer Systems Research Institute (1995-97)

Group Leader, Computer Systems Research Group (1997-2002)

Member, Research Marketing Committee, for Vice-President Ressearch (1997)

Member, University of Toronto Governing Council (1999-2001)

Member, Planning and Budget Committee of Academic Board (1999-2001)

b. Outside the University

Treasurer, International Federation of Information Processing Societies, Working Group on Computer System Modelling, 1978-83

Secretary, International Federation of Information Processing Societies, Working Group on Computer System Modelling, 1983-85

Chairman, International Federation of Information Processing Societies, Working Group on Computer System Modelling, 1985-89

University of Toronto representative to EDUCOM, 1978-81

Member of Board of Directors, ACM Sigmetrics, 1983-87

Member, NSERC Grant Selection Committee for Computing and Information Sciences, 1984-87

Chairman, NSERC Grant Selection Committee for Computing and Information Sciences, 1986-87

Member, NSERC Council, 1988-1994

Member, NSERC Committee on the Research Base, 1988-1994

Member, NSERC Ad Hoc Committee on Research Computation, 1989-1991

Member, Computer Research Association Board, 1996-99

Secretary, Computer Research Association Board, 1997-99