

CURRICULUM VITAE

Donald D. Cowan

PRESENT POSITION: Distinguished Professor Emeritus and Director, Computer Systems Group,
University of Waterloo

DATE and PLACE OF BIRTH: March 11th, 1938, Toronto, Ontario, Canada

MARITAL STATUS: Widowed, 3 Children

CITIZENSHIP: Canadian

EDUCATION:

B.A.Sc. Engineering Physics, 1960, University of Toronto
M.Sc. Applied Mathematics, 1961, University of Waterloo
Ph.D. Applied Mathematics, 1965, University of Waterloo

CAREER:

1960 - 1962 Research Assistant and Teaching Fellow, University of Waterloo
1962 - 1965 Lecturer, University of Waterloo
1965 - 1967 Assistant Professor, Associate Director of the Computing Centre, University of Waterloo
1966 - 1972 Chairman, Applied Analysis & Computer Science Department, University of Waterloo
1967 - 1975 Associate Professor, Applied Analysis & Computer Science Department, University of Waterloo
1969 - Consultant to the Graduate Program, Pontifical Catholic University of Rio de Janeiro, Brazil
1972 - 1973 Visiting Associate Professor, Computer Science Department, Stanford University
1972 - 1973 Scientist - Xerox Palo Alto Research Centre, Palo Alto, California
1974 - 1982 Co-Director, CIDA/COMBRA Project Co-Director, CIDA/COMBRA Project
1974 - 2003 Director, Waterloo Foundation For The Advancement of Computing (WATFAC)
1974 - 1978 Associate Dean of Graduate Studies, Faculty of Mathematics, University of Waterloo
1975 - 1996 Professor, Computer Science Department, University of Waterloo
1978 - 1979 Visiting Research Scientist, IBM Research Laboratory, Zurich
1979 - Director, Waterloo Mathematics Foundation
1980 - Senior Associate Scientist, Computer Systems Group, University of Waterloo
1980 - 1985 President, Waterloo Software Applications Centre Inc.
1980 - 1985 Director, Waterloo Software Applications Centre Inc.
1982 - 1984 Secretary, WATSOFT Products Inc.
1982 - 1984 Director, WATSOFT Products Inc.
1982 - 1992 Director, WATCOM Group Inc.
1982 - 1986 President, WATCOM Seminars
1983 - 1989 Director, Ontario Centre for Advanced Manufacturing
1984 - 1992 Director, WATCOM Products Inc.
1986 - 1992 Director, Project ARIES
1992 - Director, Computer Systems Group
1996 - 1999 Professor Emeritus/Adjunct Professor, Computer Science Department, University of Waterloo
1994 - 2003 Director Education Program for Software Professionals
1999 - Distinguished Professor Emeritus/Adjunct Professor, Computer Science Department, University of Waterloo
2000 - 2004 President and Director Waterloo Mathematics Foundation
2002 - 2005 Distinguished Professor Emeritus/Adjunct Professor, School of Computer Science, University of Waterloo
2003 - Adjunct Professor, Department of Biology, University of Waterloo
2003 - 2020 Board Member, University of Waterloo Centre for Information Integrity and Information Systems Assurance
2003 - 2008 Adjunct Professor, Faculty of Computer Science, Dalhousie University

2002 – Director, J.W. Graham Information Technology Trust
2005 - Distinguished Professor Emeritus/Adjunct Professor, David R. Cheriton, School of Computer Science, University of Waterloo
2005 - Founding Member of Intelligent Waterloo Committee
2005 – 2011 Chief Technology Officer and Director, Medmanager Interactive Corporation
2007- 2010 President and Director, Waterloo Mathematics Foundation
2005 – 2009 Board Chair and Director, Centre for Community Mapping
2010 – 2014 Trustee Waterloo Mathematics Charitable Trust Foundation
2011 – 2020 Director at large, University of Waterloo Centre for Information System Assurance
2012 – CEO, WIDE Software Systems Corporation (operating as WIDEAtlas)
2013 – 2015 Adjunct Professor, Environment and Resource Studies, University of Waterloo
2015 – Canadian Index of Wellbeing (CIW) Research Associate, University of Waterloo
2015 – Member, Water Institute, University of Waterloo
2015 – Member, Centre for Bioengineering and Biotechnology, University of Waterloo
2015 – Board Chairman, VolunteerAttract
2016 – Adjunct Professor, School of Environment, Resources and Sustainability
2018 – Board Chairman, Driftscape Corporation
2019 – Board Chairman, CivicAtlas Corporation

Awards

Major Awards

CS-Can/Info-Can Lifetime Achievement Award in Computer Science 2017.
AWARD OF MERIT, for contributions to software development for the Volunteer Action Centre, 2017.
Doctor of Science, honoris causa, University of Guelph, 2011
ACM Distinguished Scientist 2010
Waterloo Award 2009 - the City of Waterloo's highest civic honour for outstanding contributions to the Waterloo community
Grand Cross of Scientific Merit, Brazilian National Order of Scientific Merit, - Brazil's Highest Civilian Scientific Honour (2007)
Award of Excellence in Graduate Supervision – University of Waterloo (2006)
Distinguished Professor Emeritus - University of Waterloo (1999)

Other Awards

50-year founding member IEEE (2012)
Innovator, 1957 Society, University of Waterloo (2007)
Canadian Pioneer in Computing, IBM Center for Advanced Studies (2005)
IBM Innovation Award (2003)
Information Management Excellence in the Public Sector - Silver Medal (1999)
Compaq Award for Scientific Production (best scientific publication in 1995)
Founding Fellow of the Institute of Combinatorics and its Applications (1989)
Brazil-Canada Scientific Exchange Award (1970)
Brazil-Canada Scientific Exchange Award (1969)

Biographical Sketch

Donald D. Cowan is Distinguished Professor Emeritus of Computer Science at the University of Waterloo and Director of the Computer Systems Group, and has been at the University since 1960. Professor Cowan was the founding Chairman of the Computer Science Department at the University of Waterloo. He has graduated over 120 graduate students (PhD and MMath) and postdoctoral fellows during his career.

His research interests in software engineering have involved him in many of the software systems that have been created at the University of Waterloo during the period of 1965 to 1995, and distributed in over 40 countries. These software systems include: WATFOR, WATFIV, WATBOL, WIDJET, WATERLOO Pascal, APL, BASIC, COBOL, and FORTRAN, the local area networks Waterloo JANET and MacJANET and many other software systems for education.

Dr. Cowan's current interest in software engineering focuses on design and implementation of Web-based and mobile software systems, particularly in reducing the number of abstractions required to produce and validate such software. Reducing the number of abstractions will lower the technological barriers for individuals and organizations to build and maintain Web-based and mobile systems. During his entire research career he has received over \$22,000,000 in research support.

Dr. Cowan was the creator and director of EPStar (EP*), a suite of university-level programs designed to teach the foundations of many university subjects to professionals. The programs were in areas such as software development, networking, electronic commerce, health informatics, photonics, organizational communications, digital brand design, and water quality management.

Professor Cowan is the author, co-author or editor of 300 refereed papers and 17 books in computer/communications, software engineering, education, environmental information systems and mathematics. He is a pioneer in the field of computer/communications having co-authored several papers with Dr. Vinton Cerf, a Father of the Internet. He also co-authored one of the seminal papers in computer networking and economics in the early 70s, and has worked with Dr. Paul Baran, the originator of the computer network concept.

Professor Cowan has served as a consulting scholar with IBM Corporation providing advice on the application of computers in education. He has also served as a consultant to many businesses, government agencies and universities including Apple, Xerox, Fasken and Calvin, Sasktel, Gulf Oil, Microsoft, the Organization of American States (OAS), the United Nations and various ministries of both the Ontario, Canadian and foreign governments.

Donald Cowan is a co-founder of several University of Waterloo spin-off companies; the most noteworthy ones being WATCOM, now iAnywhere Solutions and part of SAP, and of LivePage Corporation, now part of Oracle Corporation. He has served on the Board of Directors of WATCOM, LivePage, the Waterloo Foundation for the Advancement of Computing (WATFAC), the Ontario Centre for Advanced Manufacturing and as President and Director of Waterloo Software Applications Centre Inc., a company owned by the University of Waterloo. He currently is a Director of the J.W. Graham Information Technology Trust and a former Trustee of the Waterloo Mathematics Charitable Trust. He is a founding member of the Intelligent Waterloo Committee that prepared the submission that won the Intelligent Community award in 2007 for the City of Waterloo.

Among several honours, Donald Cowan has received the Brazilian National Order of Scientific Merit - Grand Cross, Brazil's Highest Scientific Honour (2007) in recognition of his research and the more than 45 years he has helped with the development of Brazilian Computer Science. He is the only non-Brazilian computer scientist to hold this award. He also received the Award of Excellence in Graduate Supervision (2006) from the University of Waterloo in acknowledgement of his work with and supervision of over 120 graduate students and postdoctoral fellows during his academic career. In 2009 he received the Waterloo Award, the City of Waterloo's highest civic honour, for his contributions to the City of Waterloo. In 2010 he was named a Distinguished Scientist by the Association for Computing Machinery. In 2011 he received a Doctor of Science (Honoris Causa) from the University of Guelph for his contributions to Computer Science and Software Engineering. In 2017 he along with colleague Kyle Young received the Award of

Merit from the Volunteer Action Centre of Kitchener Waterloo for the development of volunteer matching software that is used locally, provincially and nationally. In 2018 Donald Cowan received the CS-Can/Info-Can Lifetime Achievement Award in Computer Science (for 2017) in recognition of his many contributions.

Dr. Cowan is a designer of the Web Informatics Development Environment (WIDE) toolkit which provides the underlying technology for the development of web-based community information utilities for over 80 geographic communities and communities of interest in areas such as socio-economic development, environment, population health, cultural heritage and community support. The communities represent organizations ranging from NGOs, businesses, universities and research centres, to all levels and types of government including First Nations groups and the United Nations. Examples can be found at <http://www.comap.ca/fwis/>, <http://inweh.unu.edu/archive/River/KnowledgeManagement/KIM-UNU.htm>, <http://bricksandmortar.artsbuildontario.ca/>, <http://www.volunteerkw.ca>, and <http://www.buildingstories.co/>. The same technology has been used to build enterprise management systems for business and government.

Dr. Cowan is also the designer of StudySpace a computer-based learning tool that has been used in many online courses and is currently being used worldwide by the United Nations University in courses on water quality management.

Dr. Cowan is currently applying his software engineering approaches to building complex data sharing platforms in several domains including: environment (aspects of surface water), social indicators, First Nations, economic development, volunteerism and multimedia publishing.

The Computer Systems Group

The Computer Systems Group at the University of Waterloo is a research group that specializes in document and software engineering, and software design and implementation. The members of the group study the process of building software and then implement practical software systems to test the ideas. Many of these software systems have solved key problems in several application areas and have been made available through various commercial arrangements. Current research focuses on building software from components specifically those associated with the Internet and World-Wide Web.

Recent examples of practical software systems include the Web Informatics Development Environment (WIDE) toolkit which has been used to build over 50 information utilities based on Web 2.0 principles, LivePage, a software system for managing and publishing large scale Web sites and VxReXX a scripting language for Windows. Earlier systems focused on education. These software systems included WATFOR, WATFIV, WATBOL, WIDJET, WATERLOO Pascal, APL, BASIC, COBOL, and FORTRAN, and the local area networks Waterloo JANET and MacJANET. Over 3000 copies of these software systems have been distributed in 40 countries.

The University of Waterloo

The University of Waterloo is one of Canada's most research intensive and innovative universities, and is ranked first in the annual survey of Canadian Universities conducted by Macleans, Canada's national news magazine and is also ranked in the top 100 in reputation by the Times Higher Education World University Rankings.

Waterloo has a broadly-based education and research program with particular emphasis on information technology and communications, mathematics, engineering and science. There are also excellent programs in humanities, applied health sciences, and environmental studies. The University operates as six faculties or academic units: Applied Health Sciences, Arts, Engineering, Environment, Mathematics and Science. An in-depth look at the University can be found at www.uwaterloo.ca. The Faculty of Mathematics operates the world's largest Mathematics and Computer Science program.

The University of Waterloo operates the largest cooperative education program in the world (Northeastern University in Boston is second) where students alternate 4-month periods of study and work. This program operates within all academic units of the University, but is strongly emphasized within Mathematics, Engineering and Science. Although many students in cooperative education programs work in Canada

during work terms, Waterloo students are in high demand both on their coop term and after graduation at companies all over the world including organizations such as Google, Intel, IBM and Microsoft.

The University of Waterloo attracts many of the brightest students from across Canada and always enters teams in both the Putnam Mathematics Competition and the ACM Intercollegiate Programming Contest. University of Waterloo teams regularly finish in the top half-dozen places in both these contests along with U.S. schools such as Stanford, Harvard, MIT, Berkeley and Carnegie-Mellon.

Spin-off companies are a well-known phenomenon at the University of Waterloo; at least 500 companies have been spawned because of Waterloo innovation and research. The University of Waterloo generates more spin-off companies than any other university in Canada and credit for that frequently goes to its policy of allowing professors to own the knowledge they create through their research. Spin-off companies such as RIM (Blackberry), OpenText and iAnywhere Solutions (Sybase) are world leaders in mobile communications, collaborative software and mobile commerce. Products from these companies are used around the globe and adopted by many large American corporations, the US government and the U.S. military.

The University of Waterloo and the City of Waterloo also provide homes for the Centre for International Governance Innovation, the Perimeter Theoretical Physics Institute, the Institute for Quantum Computing and *Balsillie School* of International Affairs. These three institutes have been established by local philanthropists and businessmen and have been supported with an endowment totaling over \$300,000,000.

REFEREED PAPERS IN JOURNALS (99 Total)

1. Portugal, I., Alencar, P., Cowan, D., A Framework for Spatial-Temporal Trajectory Cluster Analysis based on Dynamic Relationships, *IEEE Access*, vol. 8, pp. 169775-169793, 2020.
2. Telemaco, U. Oliveira, T., Alencar, P., Cowan, D., A Catalogue of Agile Smells for Agility Assessment, *IEEE Access*, vol. 8, pp. 79239-79259, 2020. PONE-D-20-27912
3. Nascimento, N., Alencar, P., Lucena, C., Cowan, D., A Metadata-driven Approach for Testing Self-organizing Multiagent Systems," This paper appears in: *IEEE Access* pp1-12, ISSN: 2169-3536, DOI: 10.1109/ACCESS.2020.3036668
4. Ivens Portugal, Toacy Oliveira, Paulo Alencar and Donald Cowan. "A Framework for Spatial-Temporal Trajectory Cluster Analysis based on Dynamic Relationships," to appear *IEEE Access*.
5. Ivens Portugal, Toacy Oliveira, Paulo Alencar and Donald Cowan. "MylynSDP—Process - aware artifact filtering based on interest." *Journal of the Brazilian Computer Society* 12/2020; 26(1).
6. Ullisses Telemaco, Toacy Oliveira, Paulo Alencar, and Don Cowan. "A Catalogue of Agile Smells for AgilityAssessment." to appear *IEEE Access*.
7. Chrystinne Oliveira Fernandes, Simon Miles, Carlos José Pereira De Lucena, Donald Cowan. "Artificial Intelligence Technologies for Coping with Alarm Fatigue in Hospital Environments Because of Sensory Overload." *JMIR - Journal of Medical Internet Research* (ISSN 1438-8871)
8. Ivens Portugal, Paulo Alencar, Don Cowan. "The Use of Machine Learning Algorithms in Recommender Systems: A Systematic Review." *Expert Systems with Applications* Volume 97, 1 May 2018, Pages 205–227.
9. Vahid R. Karimi , Paulo S. C. Alencar, Donald D. Cowan "A formal modeling and analysis approach for access control rules, policies and their combinations." *International Journal of Information Security*. <http://dx.doi.org/10.1007/s10207-016-0314-4> pp 1-32
10. Holly L. Gardner, Denis Kirchhoff, Don Cowan, and Leonard J.S. Tsuji "An approach to collecting, collating, reviewing, and disseminating technical information for the advancement of evidence-based environmental decision-making including Environmental Assessments in remote First Nations of northern Canada" in press *The International Indigenous Policy Journal*. 2015.
11. Vahid R. Karimi, Paulo S. C. Alencar, Donald D. Cowan. "A uniform approach for business and access control models with explicit rule realization," *International Journal of Information Security* February 2015 DOI 10.1007/210207-015-0275-z Volume 15, Issue 2, 2016 pp 145-171.
12. Raquel M. Pillat, Toacy C. Oliveira, Paulo S. C. Alencar, Donald D. Cowan *BPMNt: A BPMN Extension for Specifying Software Process Tailoring Information and Software Technology* Volume 57 January 2015 pp 95-115.
13. V.R. Karimi, D.D. Cowan, P.S.C. Alencar An Approach to Correctness of Security and Operational Business Policies *International Journal of Accounting Information Systems* , Volume 15, July 2014 pp 323-334.
14. Andrea Isogai, Daniel D. McCarthy, Holly L. Gardner, Jim D. Karagatzides, Skye Vandenberg, Christine Barbeau, Nadia Charania, Vicky Edwards, Don Cowan, Leonard J.S. Tsuji, "Examining the Potential Use of the Collaborative-Geomatics Informatics Tool to Foster Intergenerational Transfer of Knowledge in a Remote First Nation Community." *The Australian Journal of Indigenous Education* 08/2013; 42(01). DOI:10.1017/jie.2013.10. pp44-57.
15. C.I. Mayfield, D.D. Cowan, D. Swayne. "Data Sharing and Information Technology in the Ecoresearch Program," *Canadian Water Resources Journal* 01/2013; 21(3):201-207.
16. Ingrid Nunes, Simone D.J. Barbosa, Don Cowan, Simon Miles, Michael Luck and Carlos J.P. de Lucena. "Natural Language- based Representation of User Preferences," *Interacting with Computers* Volume 27, Issue 2 Pp. 133-158., Oxford Journals, Oxford University press .

17. McCarthy, Daniel D; Whitelaw, Graham; King, Carolyn; King, Clynt; Viswanathan, Leela; Cowan, Don; McGarry, Fred; and Anderson Scott. "Collaborative Geomatics and the Mississaugas of the New Credit First Nation: Triaging Requests. for Planning Development Consultation." *The International Journal of Technology, Knowledge, and Society* Volume 9, 2013 pp1-15.
18. Nadia A. Charania, Dr. Don Cowan, Dr. Leonard J. S. Tsuji, "Health Care Delivery in Remote and Isolated First Nations Communities in Canada: The Need for a Collaborative Health Informatics System" *International Journal of Technology, Knowledge and Society*, Volume 8, Issue 5, pp.71-84 <http://ijt.cgpublisher.com/product/pub.42/prod.886>, 2012.
19. Dr. Daniel D. McCarthy, Christine D. Barbeau, Dr. Donald Cowan, Dr. Leonard J. S. Tsuji, "Potential Use of an Interactive Web-Based Informatics Tool to Decrease the Incidence of Human-Polar Bear Encounters Along the Western James Bay Coast of Ontario, Canada," *International Journal of Technology, Knowledge and Society*, Volume 8, Issue 5, pp.113-127 <http://ijt.cgpublisher.com/product/pub.42/prod.889>, 2012.
20. D.D. Cowan, F.M. McGarry, H. Moran, D.D. McCarthy, C. King. Information Technology to Support Indigenous Peoples IEEE IT Professional. Special Issue on IT in Emerging Markets, Vol 14, No 4, pp39-47.
21. Dr. Daniel D. McCarthy, Holly L. Gardner Youden, Andrea D. Isogai, Dr. Donald Cowan, Dr. Leonard J. S. Tsuj "The Collaborative Geomatics Informatics Tool: Engaging Youth using Place-Based Learning," *THE INTERNATIONAL JOURNAL OF TECHNOLOGY, KNOWLEDGE AND SOCIETY* <http://ijt.cgpublisher.com/product/pub.42/prod.830> pp 131-142.
22. Holly L. Gardner-Youden , Christine Barbeau , Daniel D. McCarthy , Vicky Edwards , Donald Cowan & Leonard J. S. Tsuji (2011): Indigenous mapping technologies: the past, present and future of the collaborative geomatics web-based tool, *Knowledge Management for Development Journal*, 7:3, 340-353. <http://dx.doi.org/10.1080/19474199.2012.684500>
23. Christine D. Barbeau, Nadia A. Charania, Andrea D. Isogai, Dr. Daniel D. McCarthy, Dr. Donald Cowan, Dr. Leonard J. S. Tsuji, "Fostering Adaptive Capacity and Resilience to Environmental Change in Sub-Arctic First Nations" *The International Journal of Technology, Knowledge and Society*, Volume 7, Issue 3 <http://ijt.cgpublisher.com/product/pub.42/prod.781>, 2011 pp44-57.
24. Don Cowan, Paulo Alencar, Fred Mc*Garry, Daniel McCarthy "Collaborative Geomatics for Innovation in Health Research and Policy" Vol 6, No 4 (2011): Special Issue on the Advances in Health Informatics Conference (AHIC 2010) <http://www.ejhi.net/ojs/index.php/ejhi/issue/view/13> pp1-10.
25. Toacy Cavalcante de Oliveira, Paulo S. C. Alencar, Donald D. Cowan: ReuseTool - An extensible tool support for object-oriented framework reuse. *Journal of Systems and Software* 84(12): pp2234-2252 (2011)
26. Nadia A. Charania, Dr. Daniel DP McCarthy, Dr. Donald Cowan, Dr. Leonard JS Tsuji, "Developing a Collaborative Health Informatics System to Foster Inter-Agency Collaboration and Communication during Public Health Emergencies: Remote and Isolated First Nation Communities of Sub-Arctic Ontario, Canada." *The International Journal of Technology, Knowledge and Society* <http://ijt.cgpublisher.com/product/pub.42/prod.792> pp 75-92.
27. Christine Barbeau, Andrea Danielle Isogai, Dr. Daniel D. McCarthy, Dr. Donald Cowan, Dr. Leonard JS Tsuji, "Collaborative Geomatics in Society and the Environment: Using an Interactive Web-Based Informatics Tool in Remote First Nation Communities in Sub-Arctic Canada." *The International Journal of Technology, Knowledge and Society* 2011, http://t11.cgpublisher.com/proposals/217/index_html.
28. Daniel D.P. McCarthy, Graham S. Whitelaw, Scott Anderson, Donald Cowan, Fred McGarry, Anthony Robins, Zachariah General, Jeff Liedtke, Holly Younden, Celine Sutherland, Paulo Alencar, Leonard J.S. Tsuji. "Collaborative geomatics and the Mushkegowuk Cree First Nations: Fostering adaptive capacity for community-based sub-arctic natural resource management." *Geoforum*, Volume 43, Issue 2, March 2012, Pages 305–314.

29. NUNES, I., COWAN, D., CIRILO, E.J.R., LUCENA, C.J.P. (2011), A Case for New Directions in Agent-oriented Software Engineering, in Danny Weyns and Marie-Pierre Gleizes, ed., *Agent-Oriented Software Engineering XI*, Vol. 6788 of LNCS, Springer-Verlag, 2011, p. 37-61.
30. NUNES, I., LUCENA, C.J.P., COWAN, D., KULESZA, U., ALENCAR, P., NUNES, C. (2011), Developing Multi-agent System Product Lines: From Requirements to Code, *International Journal of Agent-Oriented Software Engineering (IJAOSE)* 4(4), pp353-389
31. Mendonca, Marcilio, Cowan, Donald, Decision-making coordination and efficient reasoning techniques for feature-based configuration, *Science of Computer Programming* 75 (2010) 311-332.
32. Dai, W., Covvey, D., Alencar, P., Cowan, D., Lightweight Query-Based Analysis of Workflow Process Dependencies, *Journal of Systems and Software*,82 (2009) 915-931.
33. Paes Rodrigo, Lucena Carlos, Carvalho Gustavo, Cowan Donald D, An Event-Driven High Level Model for the Specification of Laws in Open Multi-Agent Systems, the *Journal of Systems and Software* 82 (2009) pp629–642.
34. ZAUPA, Fabio Gabriel, GIMENES, I. M. S., COWAN, D., ALENCAR, P., LUCENA, Carlos José Pereira de A Service-oriented Process to develop Web Applications. *Journal of Universal Computer Science*, Vol. 14, No. 8, pp. 1368-1387. Special Issue on "Software Components, Architectures and Reuse" edited by Rogerio Lemos and Cecilia Rubira.
35. DIMARCO, C, BRAY, P., COVVEY, H.D., COWAN, D.D., DICICCIO, V., HOVY, E, LIPA, J., YANG, C., "Authoring and Generation of Individualized Patient Education Materials", *Journal on Information Technology in Healthcare*, February 2008 pp195-199.
36. M. Mendonca, D.D Cowan, W. Malyk, T. Oliveira: Collaborative Product Configuration: Formalization and Efficient Algorithms for Dependency Analysis, *Journal of Software*, Academy Publisher, ISSN:1796-217X, Issue 6, 2007. pp69-82
37. Jing Dong, Paulo S. C. Alencar, Donald D. Cowan, and Sheng Yang Composing Pattern-Based Components and Verifying Correctness *Journal of Systems and Software* vol 80, Issue 11, Pages 1755-1769, Elsevier Science, November 2007.
38. Oliveira, T.C., Alencar, P.S.C., Lucena, C.J.P, Cowan, D.D., RDL: A Language for Framework Instantiation Representation, *Journal of Systems and Software*, Volume 80, Issue 11, November 2007, pp 1902-1929.
39. Cowan, Donald, Covvey Dominic, Fenton, Shirley, Miller Judith, Mulholland, Douglas, de Groot Martin, Matyas Cathy, McGarry Fred, Sustainability Models for Web-Based Information Systems Supporting Communities of Practice *International Journal of Technology, Knowledge and Society* 2007 <http://ijt.cgpublisher.com/product/pub.42/prod.174>.
40. M. Nelson, P.S.C. Alencar, D.D. Cowan, Informal Description and Analysis of Geographic Requirements: An Approach based on Problems, *Software and Systems Modeling*, Springer Berlin / Heidelberg ISSN 1619-1366 (Print) pp 223-245, 1619-1374 (Online) pp 1-23, 2006.
41. Nelson, M., Alencar, P.S.C., Cowan, D.D., Formal Description and Analysis of Geographic Problem Frames, *Requirements Engineering Journal (REJ)*, 2007.
42. Cowan, D.D., Fenton, S.L., Mulholland, D.W., Lowering Technological Barriers to Developing, Deploying and Maintaining Web-based Interactive Information Systems *International Journal of Technology, Knowledge and Society*, Volume 1, Issue 4, 2005, pp.175-182.
43. Alencar, P.S.C., Dong, J., Cowan, D.D., Automating the analysis of design component contracts *Software: Practice and Experience* Volume 36, Issue 1, Date: January 2006, Pages: 27-71.
44. Alencar, P.S.C., Oliveira, T., Cowan, D.,D., Filho, M., Lucena, C.J.P., Software Process Representation and Analysis for Framework Instantiation, *IEEE Transactions on Software Engineering (IEEE TSE)*, vol. 30, no. 3, pp. 145-159, March 2004.

45. Alencar, P.S.C., Nelson, M., Nelson, T., Cowan, D.D., An Approach to Explore Problem Frame Concerns using Formal Analysis, *Journal of Information and Software Technology*, vol. 47, no. 14, pp. 913-927, 2005.
46. Alencar, P.S.C., Oliveira, T., Cowan, Filho, M., Lucena, C.J.P., Correspondence: "Response to Jiau and Kao's Comments," *IEEE Transactions on Software Engineering (IEEE TSE)*, Vol. 30 no. 10 pp. 708.
47. A.F. Garcia, C.J.P. Lucena, D.D. Cowan, "Agents in Object-Oriented Software Engineering" *Software Practice and Experience* 2004; 34 489-521.
48. Oliveira, T. C.; Mathias F, I.; Lucena, C J P.; Cowan, D D ; Alencar, P. S.C. Feature Driven Framework Instantiation. In: Matthias Riebisch; Jim Coplien; Detlef Streitferdt. (Org.). *Modelling Variability for Object-Oriented Product Lines.* , 2003, v. 1, p. 1-22.
49. Dong, J. Alencar, P.S.C., and Cowan, D.D. A Behavioral Analysis and Verification Approach to Pattern-Based Design Composition, the *International Journal of Software and Systems Modeling*, Springer-Verlag, Volume 3, Number 4, December 2004, Pages 262-272. (Selected best paper of OOS'01).
50. D.D. Cowan, M.E. Markiewicz, C.J.P. Lucena, "Taming Access Control Security: Extending Capabilities using the Views Relationship" *Software-Practice & Experience* 32(4): 341-358 (2002).
51. D.D. Cowan, P.S.C. Alencar, M. Luo, "A Framework for Community Information Systems," *Annals of Software Engineering (ASE)*, Special Issue on Object-oriented Web-based Software Engineering, 13, 2002, pp381-411.
52. D.D. Cowan, P.S.C. Alencar, M.E. Markiewicz, C.J.P. Lucena, "Views and Patterns in E-Commerce Application Design," *Annals of Software Engineering (ASE)*, Special Issue on Object-oriented Web-based Software Engineering, 13, 2002, pp111-140.
53. D.D. Cowan, P.S.C. Alencar, "The Role of Formal Methods in Component-Based Software Engineering," *Handbook on Component-Based Software Development*, 2002.
54. D.D. Cowan, C. Mayfield, M. Joliat, "The Roles of Community Networks in Environmental Monitoring and Environmental Informatics," Elsevier Science Ltd., *Advances in Environmental Research*, Volume: 5, Issue: 4, November, 2001, pp. 385-393.
55. D.D. Cowan, P.S.C. Alencar, M.A.V. Nelson, "An Approach to Formal Specification and Verification of Map-Centered Applications," *Journal on Environment Modeling and Software (JEMS)*, 16 (2001) pp459-465.
56. D.D. Cowan, P.S.C. Alencar, B. Fraser, D.M. German, L. Nova, G. Pianosi, J. Roberts, "Dynamic Documentation Over the Web," *Advances in Software Engineering: Comprehension, Evaluation, and Evolution*, pp. 349-368, Ergodmus, H., and Tanir, O., eds., Springer, 2000.
57. D.D. Cowan, P.S.C. Alencar, S. Crespo, M.F. Fontoura, C.J.P. Lucena. "Using viewpoints to derive object-oriented frameworks: a case study in the web-based education domain," *Journal of Systems and Software*, 54 (2000) pp 239-257.
58. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "A Logical Theory of Interfaces and Objects," *IEEE Transactions on Software Engineering*, Volume 28(6), pp 548-575.
59. P.S.C. Alencar, D.D. Cowan, T. Nelson, M.F. Fontoura, C.J.P. Lucena, "Viewpoints and Frameworks in Component-Based Software Design," *Building Application Frameworks (three volumes)*, Volume I, *Object-Oriented Foundations of Framework Design*, pp. 163-166, M.E. Fayad, D.C. Smith, R.E. Johnson (eds.), John Wiley & Sons, 1999.
60. P.S.C Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova, "Specification of Application and Interface Objects," revised and resubmitted (first round of refereeing), *ACM Transactions on Software Engineering and Methodologies*, 1998.

61. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, M.A.V. Nelson, "Towards an Object-Oriented Framework to Build Hypermap-Based Applications," Special issue of Environmental Modelling and Software, 20 pages, 1998.
62. D.D. Cowan, C.I. Mayfield, F.W. Tompa, W. Gasparini. "New Role for Community Networks," Communications of the ACM, April (1998) pp 61-63.
63. D.M. German, D.D. Cowan. "A federated database for hypermedia development for the WWW," Cooperative Databases and Applications Proceedings of International Symposium on Cooperative Database Systems for Advanced Applications, World Scientific editors Yahiko Kambayashi and Kazumasa Yokota, pp 178—181, Dec 1996.
64. D.D. Cowan, C.H. Levy, L.H. de Figueiredo, M. Gattass, C.J.P. Lucena. "IUP/LED: A Portable User Interface Development Tool," Software - Practice & Experience (1996), Volume 26(7), pp. 737-762.
65. D.D. Cowan, M.W.F.P. Lucena. "A Methodology for Supporting Cooperative Work by Children in Different Countries," The Texas Science Teacher (1995), Volume 24, Number 2, pp. 12-18.
66. P.J. Bumbulis, P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Combining Formal Techniques and Prototyping in User Interface Construction and Verification," 2nd Eurographics Workshop on Design, Specification, Verification of Interactive Systems (DSV-IS'95). Springer Verlag Lecture Notes in Computer Science.
67. D.D. Cowan, C.J.P. Lucena. "Abstract Data Views: An Interface Specification Concept to Enhance Design for Reuse," IEEE Transactions on Software Engineering, Volume 21(3), pp 229-243.
68. P.J. Bumbulis, D.D. Cowan. "Generating Small Fast Scanners," ACM Letters on Programming Languages and Systems (1993), Volume 2, Nos. 1-4, pp. 70-84.
69. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "An Introduction to the OSI Directory Services," Computer Networks and ISDN Systems (1993), pp. 239-249.
70. D.D. Cowan, R. Ierusalimschy, C.J.P. Lucena, T.M. Stepien. "Application Integration: Constructing Composite Applications from Interactive Components," Software Practice and Experience (1993), Volume 23(3), pp. 255-275.
71. D.D. Cowan, R. Ierusalimschy, C.J.P. Lucena, T.M. Stepien. "Abstract Data Views," Structured Programming (1993), Volume 14, pp. 1-13.
72. D.D. Cowan, C.M. Durance, E.M. Giguere, G.M. Pianosi. "CIRL/PIWI: A GUI Toolkit for Supporting Retargetability," Software Practice and Experience (1993), Volume 23(5), pp. 511-527.
73. D.D. Cowan, E.W. Mackie, G.M. Pianosi, G. de V. Smit. "Rita - An Editor and User Interface for Manipulating Structured Documents," Electronic Publishing, Origination, Dissemination and Design, v4(3), September 1991, pp. 125-150.
74. D.D. Cowan, S. Fenton, J.W. Graham, T.M. Stepien. "Networks for Education at the University of Waterloo," Computer Networks and ISDN Systems, 15 (1988), pp. 313-327.
75. D.D. Cowan, C.J.P. Lucena, R.C.B. Martins, P.A.S. Veloso. "A Theoretical Proposal to a CASD System Extending Jackson's Method," Computer-Based Automation, Plenum Press, edited by J.T. Tou, 1985, pp. 213-241.
76. D.D. Cowan, J.W. Graham. "Waterloo Microcomputer Systems for the 1980's," AEDS Monitor, July/August 1983, Vol. 22, Nos. 1 & 2, pp. 11-14.
77. D.D. Cowan, S.T. Vuong. "Automated Protocol Validation via Resynthesis: The CCITT X.75 Packet Level Recommendation as an Example," Journal of Telecommunication Networks, Summer 1983, Vol. 2, No. 2, pp. 153-176.
78. D.D. Cowan, R.F. Quinn, M.J. Rogers, R.G. Stanton. "Bipackings of Pairs into Triples and Isomorphism Classes of Small Bipackings," Journal Of The Australian Mathematical Society (Series A) 34 (1983), pp. 214-228.

-
79. J.L. Allston, D.D. Cowan, R.G. Stanton, W.D. Wallis. "The Number of Non-isomorphic Solutions to a Problem in Covering Designs," *Utilitas Mathematica*, Vol 21A(1982), pp. 119-136.
 80. J.L. Allston, D.D. Cowan, R.G. Stanton, P.D. Eades. "Computation of the $g(1,3;20)$ Cover," *Journal of Combinatorics, Information and System Sciences*, Vol. 6, No. 2, pp. 173-177 (1980).
 81. J.L. Allston, D.D. Cowan, R.G. Stanton. "Pair-coverings with Restricted Largest Block Size," *Ars Combinatoria*, Volume 11(1981), pp. 85-98.
 82. J.L. Allston, D.D. Cowan, R.G. Stanton. "Determination of an Exact Covering by Triples," *Congressus Numerantium*, vol. 31(1981), pp. 253-258.
 83. D.D. Cowan, P.D. Eades, R.G. Stanton, G.H. van Rees. "Computation of some Exact g -Coverings," *Utilitas Mathematica*, vol. 18 (1980), pp. 269-282.
 84. D. Brand, D.D. Cowan, H. Rudin, C. West, P. Zafiropulo. "Protocol Analysis and Synthesis Using A State Transition Model," *Computer Network Architectures and Protocols*, Plenum Publishers.
 85. D.D. Cowan, S.T.E. Seah, R.G. Stanton. "Non-Existence of An Extremal Graph of a Certain Type," *J. Austral. Math. Soc. (Series A)* 30 (1980), 55-64.
 86. D.D. Cowan. "The Connectivity and Reliability of a Class of Extremal Graphs," *Ars Combinatoria*, Vol. 8, December 1979, pp. 185-198.
 87. D.D. Cowan, J.W. Graham, C.J.P. Lucena, J.W. Welch. "A Data-Directed Approach to Program Construction," *Software - Practice and Experience*, Vol. 10 (1980), pp. 355-372.
 88. D. Brand, D.D. Cowan, H. Rudin, C. West, P. Zafiropulo. "Towards Analyzing and Synthesizing Protocols," *Special Issue on Computer Network Architectures and Protocols*, *IEEE Transactions on Communications*, Vol COM-28, No. 4, April 1980, pp. 651-661.
 89. A. von Staa, D.D. Cowan. "The Development Proposal - The First Step in Software System Construction," *The Journal of Systems and Software*, Vol 1 (1980), pp. 107-122.
 90. D.D. Cowan. "Use of Computers in Instruction in Higher Education," article in *International Encyclopedia of Higher Education*, Jossey-Bass Inc., January, 1978.
 91. D.D. Cowan, C.J.P. Lucena. "Toward A System's Environment for Computer Assisted Programming," *Information Processing Letters*, Vol. 5, No. 2, June, 1976, pp. 35-40.
 92. V.G. Cerf, D.D. Cowan, R.G. Stanton. "Some Unique Extremal Graphs," *Ars Combinatoria*, Volume 1, June, 1976.
 93. V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton. "Trivalent Generalized Moore Networks on Sixteen Nodes," *Utilitas Mathematica*, November, 1974, pp. 259-283.
 94. V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton. "A Lower Bound on the Average Shortest Path Length in Regular Graphs," *Networks*, John Wiley & Sons Inc., Vol. 4, No. 4, 1974, pp. 335-342.
 95. V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton. "Topological Design Considerations in Computer-Communications Networks," invited paper, *Computer Communications Networks*, Noordhoff 1975, pp. 101-112.
 96. F.J. Burkowski, D.D. Cowan. "The Numerical Derivation of a Periodic Solution of a Second Order Differential Difference Equation," *SIAM J. Numerical Analysis*, June 1972, pp. 489-495.
 97. D.D. Cowan, L.O. James, R.G. Stanton. "Tripartite Path Numbers," *Graph Theory and Computing*, Academic Press, 1972, pp. 285-294.
 98. D.D. Cowan, L. Waverman. "The Interdependence of Communications and Data Processing: in Economics of Integration and Public Policy," *the Bell Journal of Economics and Management Science*, Vol. 2, Autumn, 1971, pp. 657-677.
 99. D.D. Cowan, R.G. Stanton. "Note on a Square Functional Equation," *SIAM Review*, Vol. 12, No. 2, April, 1970, pp. 277-279.

REFEREED JOURNAL PAPERS SUBMITTED FOR PUBLICATION

1. Melo G., Oliveira T., Alencar, P., Cowan, D., Knowledge Reuse in Software Projects: Retrieving Software Development Q&A Posts Based on Project Task Similarity, PLOS ONE (second round of reviewing), 2020.
2. Peng, P., Portugal, I., Alencar, P., Cowan, D., A Face Recognition Software Framework based on Principal Component Analysis, PLOS ONE (second round of reviewing), 2020.
3. Ivens Portugal, Paulo Alencar, Don Cowan. "A Survey on Domain Specific Languages for Machine Learning in Big Data." submitted to the journal "Advances in Engineering Software"
4. Holly L. Gardner, Denis Kirchhoff, Don Cowan, and Leonard J.S. Tsuji "Drawing a line in the muskeg: A systematic review of Environmental Assessment information, curated and evaluated, to advance evidence-based environmental decision-making to benefit communities, proponent and policy makers in a remote area of Northern Ontario, Canada" submitted to The International Indigenous Policy Journal. 2017.
5. Baia, D.; Lucena, C.; Cowan, D.; Bommel, P.; Valadares, C.; Oliveira, T.. A MultiAgent Based Simulation Model to Support Management Decision Making in Software Development. Journal INFORMATION AND SOFTWARE TECHNOLOGY, 2014. (submitted)
6. Baia, D.; Lucena, C.; Cowan, Alencar, P.; Valadares, C.. MABS to support project management in agile software developing. Elsevier Journal Science of Computer Programming, 2014. (to be submitted)
7. Valadares, C.; Lucena, C; Cowan, D.; Baia, D.. A Multiagent Based ContextAware and SelfAdaptive Model for Virtual Network Provisioning. Elsevier Journal of Engineering Applications of Artificial Intelligence. (submitted)
8. Valadares, C.; Lucena, C; Cowan, D.; Baia, D.. A Normbased Selforganizing Model. The 2014 IEEE/WIC/ACM International Conference on Intelligent Agent Technology . (submitted)
9. Valadares, C.; Lucena, C; Cowan, D.; Baia, D.. Enriching SelfOrganizing Virtual Network Management Model through SelfAwareness. ACM Journal of Information Science. (submitted)

PAPERS IN PREPARATION

1. Valadares, C.; Lucena, C; Cowan, D.; Baia, D. Reputation to Support Decision Making on Self-Organizing Systems. (to be submitted)

REFEREED BOOK CHAPTERS (9 Total)

1. Barbeau Christine D., Cowan Donald and Tsuji Leonard J.S. "Increasing the Adaptive Capacity of Indigenous People to Environmental Change: The Potential Use of an Innovative, Web-Based, Collaborative-Geomatics Informatics Tool to Reduce the Degree of Exposure of First Nations Cree to Hazardous Travel Routes." Geospatial Technology - Environmental and Social Applications, edited by Pasquale Imperatore and Antonio Pepe. Intech pp75-98, 2016.
2. Paulo Alencar, Donald Cowan, Rolando Blanco. "Process Algebras for Locality." Handbook of Research on Mobile Software Engineering, pp.544-556, IGI Publishing Inc 2012.
3. Kah-Kuen, F., Alencar, P.S.C., Blanco, R., Barrenechea, E., Cowan, D.D., "Spatial Subscriptions in Distributed Event-Based Systems," Handbook of Research on Mobile Software Engineering, vol 2 pp809-823, IGI Publishing Inc 2012.
4. Chang, Y., Alencar, P.S.C., Barrenechea, E., Blanco, R., Cowan, D.D., "Context-Aware Systems: Models and Functionality," Handbook of Research on Mobile Software Engineering, vol 2, pp639-658, IGI Publishing Inc., 2012
5. Barrenechea, E., Alencar, P., MacGuire, F., Cowan, D., Oliveira, T., "Implementing Participatory Sensing in Environmental Mobile Applications," Handbook of Research on Mobile Software Engineering, vol 2, pp868-879, IGI Publishing Inc., 2012.
6. D. D. Cowan, P.S.C. Alencar, "Abstract Data Types" Encyclopedia of Computer Science and Engineering Volume 1, pages 1-11. Benjamin W. Wah, Editor ISBN 978-0-471-38393-2. January 2009
7. H. Dominic Covvey, Donald D. Cowan, Paulo Alencar, William Malyk, Joel So, David Henriques and Shirley L. Fenton, "The Representation of Dynamic, Context-Informed Workflow," BPM Handbook 2008, pages 273-286.
8. Dong J., Alencar, P., Cowan, D. Formal Specification and Verification of Design Patterns Design Pattern Formalization Techniques IGI Publishing 2007 pp. 94-108.

9. Donald D. Cowan and Terry M. Stepien "Computer/Communication Networks in Education," The Froehlich/Kent Encyclopedia of Telecommunications Volume 4, pp 331-348. Marcel Dekker Inc., 1992.

REFEREED CONTRIBUTIONS TO CONFERENCES AND OTHER PUBLICATIONS (205 Total)

1. Nathalia Nascimento, Paulo Alencar, Donald Cowan, and Carlos Lucena. "A Reference Model for IoT Embodied Agents Controlled by Neural Networks." IEEE BigData Workshop 2020.
2. Glauca Melo, Edith Law, Paulo Alencar, and Donald Cowan. "Understanding User Understanding: What do Developers Expect from a Cognitive Assistant?" IEEE BigData Workshop 2020
3. Ivens Portugal, Paulo Alencar, and Donald Cowan. "From Spatial-Temporal Cluster Relationships to Lifecycles: Framework and Mobility Applications." IEEE BigData Workshop 2020
4. Doug Mulholland, Alencar Paulo, and Cowan Donald. "iEnvironment: Perspectives on Metadata-Oriented Testing of Research Software" Open Science in Big Data (OSBD) workshop, IEEE BigData Conference, 2019.
5. Ivens Portugal, Paulo Alencar, Don Cowan. "Modeling Dynamic Spatial-Temporal Cluster Relations" Applications of Big Data Technology in the Transport Industry, IEEE Big Data 2019
10.1109/ACCESS.2020.3023376
6. Glauca Melo, Paulo Alencar, and Don Cowan. "Context-Augmented Software Development in Traditional and Big Data Projects: Literature Review and Preliminary Framework" IEEE Big Data 2019.
7. Rachel Vital, Glauca Melo, Toacy Oliveira, Paulo Alencar, Don Cowan. "AgileCritPath: identifying Critical Tasks in Agile Environments." DOI: 10.18293/SEKE2019-004 . 31st International Conference on Software Engineering and Knowledge Engineering SEKE 2019.
8. Glauca Melo, Toacy Oliveira, Paulo Alencar, Don Cowan. "Retrieving Curated Stack Overflow Posts from Project Task Similarities." Accepted SEKE 2019.
9. Ulisses Telemaco, Toacy Oliveira, Paulo Alencar and Don Cowan "A Metamodel to represent Agile Software Development Projects." Accepted CIBSE2019
10. Ulisses Telemaco, Toacy Oliveira, Paulo Alencar and Don Cowan "A Catalog of Bad Agile Smells for Agility Assessment. Accepted CIBSE2019
11. Nathalia Nascimento, Paulo Alencar, Carlos Lucena, and Donald Cowan. "Toward Human-in-the-Loop Collaboration of Software Engineers and Machine Learning Algorithms." The Second IEEE Workshop on Human-in-the-loop Methods and Human-Machine Collaboration in Big Data (HMData 2018) pp 3533-3539.
12. Ivens Portugal, Paulo Alencar, and Donald Cowan. "Trajectory Cluster Lifecycle Analysis: An Evolutionary Perspective. The 3rd IEEE International Workshop on Big Spatial Data (BSD 2018) pp 3451-3454.
13. Cristina Tavares, Paulo Alencar, and Donald Cowan. "A Variability-Aware Design Approach to the Data Analysis Modeling Process" 4th International Workshop on Methodologies to Improve Big Data Projects. pp2817-2826.
14. Ivens Portugal, Paulo Alencar, and Donald Cowan. "A Software Framework for Cluster Lifecycle Analysis in Transportation." Applications of Big Data Technology in the Transport Industry pp 4521-4526
15. Paulo Alencar, Donald Cowan, and Doug Mulholland. "The iEnvironment Platform: Developing an Open Science Software Platform for Integrated Environmental Monitoring and Modeling of Surface Water." IEEE Open Science in Big Data (OSBD) Workshop 2018 pp 3200-3209.

16. Nathalia Nascimento, Paulo Alencar, Carlos Lucena, and Donald Cowan. "An IoT Analytics Embodied Agent Model based on Context-Aware Machine Learning." First International Workshop on the Internet of Things Data Analytics (IOTDA) pp 5153-5158.
17. Nathalia Nascimento, Paulo Alencar, Carlos Lucena, Donald Cowan. "A context-aware machine learning-based approach." CASCON '18 Proceedings of the 28th Annual International Conference on Computer Science and Software Engineering, pp 40-47.
18. Gláucia Melo, Ulisses Telemaco, Toacy Oliveira, Paulo Alencar, Don Cowan. "Towards using task similarity to recommend Stack Overflow posts." To appear Proceedings of CiBSE 2018.
19. Donald Cowan, Paulo Alencar, Kyle Young, Bryan Smale, Ryan Erb, and Fred McGarry. "A Model for the Socially Smart City - Practical Uses of City-level Socio-economic Indicators." 3rd International Workshop on Smart Cities: People, Technology, and Data, Proceedings of 2017 IEEE International Conference on Big Data (Big Data) pp 4058-4067, 2017.
20. Paulo Alencar, Donald Cowan, Doug Mulholland, Bruce MacVicar, Simon Courtenay, Stephen Murphy, and Fred McGarry. "iEnvironment: A Software Platform for Integrated Environmental Monitoring and Modeling of Surface Water" 2nd Workshop on Open Science in Big Data, Proceedings of 2017 IEEE International Conference on Big Data (Big Data) pp 3975-3978, 2017.
21. Doug Mulholland, Paulo Alencar, Don Cowan. "The Future of Metadata-Oriented Testing of Research Software: Automated Generation of Test Regimes and Other Benefits." Proceedings of WSSPE5.1, the 7th Workshop on Sustainable Software for Science: Practice and Experiences (https://figshare.com/collections/Proceedings_of_the_Workshop_on_Sustainable_Software_for_Science_Practice_and_Experiences_WSSPE5_1_/3869782), Manchester, 2017.
22. I. Portugal, P. Alencar, and D. Cowan, "Towards a provenance-aware spatial-temporal architectural framework for massive data integration and analysis," in 1st IEEE International Workshop on Big Spatial Data at the 2016 IEEE International Conference on Big Data, 2016. p. 2686-2691
23. Peng Peng, Paulo Alencar, Donald Cowan "A Software Framework for PCA-based Face Recognition." Proceedings of the 2016 IEEE CS International Conference on Software, Science, Technology, and Engineering pp7-16.
24. Ivens Portugal, Paulo Alencar, Donald Cowan "A Preliminary Survey on Domain-Specific Languages for Machine Learning in Big Data." Proceedings of the 2016 IEEE CS International Conference on Software, Science, Technology, and Engineering pp108-110.
25. Van Ooteghem K, Trinh A, Badiuk B, Cowan, D, McIlroy WE. "Using technology to optimize the assessment of balance and mobility in the frail elderly." 3Rd Annual Technology Evaluation in the Elderly Network (TVN) Conference, Toronto, ON, September 2015
26. Donald Cowan, Paulo Alencar, Fred McGarry, and R. Mark Palmer. "Adapting to Climate Change - An Open Data Platform for Cumulative Environmental Analysis and Management." 3rd International Workshop on Agricultural and Environmental Information and Decision Support Systems, 2015 LNCS, Springer pp3-15.
27. Marx L. Viana, Paulo Alencar, Everton T. Guimarães, Francisco J. P. Cunha, Donald Cowan and Carlos J. P. Lucena" JSAN: A Framework to Implement Normative Agents." International Conference on Software Engineering and Knowledge Engineering (SEKE 2015) pp660-665.
28. Paulo Alencar, Donald Cowan, Fred McGarry, R. Mark Palmer, Developing a Collaborative Cloud-Based Platform for Watershed Analysis and Management, 3rd International Workshop on Collaborative Cloud (CollabCloud 2014), 10th IEEE International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom), October 22-25, Miami, Florida, USA, pp457-459.
29. Paulo Alencar, Donald Cowan, Fred McGarry, R. Mark Palmer Multisectoral Collaborative Open Data Applications accepted for 10th IEEE International Conference on Collaborative Computing:

- Networking, Applications and Worksharing (CollaborateCom 2014), October 22-25, Miami Florida, pp 64-73
30. Cowan, D., Alencar, P., McGarry, F., Perspective on Open Data: Issues and Opportunities, IEEE International Conference on Software Science, Technology and Engineering (SWSTE), I2014 DOI: 10.1109/SWSTE.2014.18 pp24-33.
 31. Talita Gomes, Toacy Oliveira, Don Cowan and Paulo Alencar. "Mining Reuse Processes" XVII Ibero-American Conference on Software Engineering (CibSE 2014) April 2014 pp179-191.
 32. V.R. Karimi, D.D. Cowan, P.S.C. Alencar. "An Approach to Correctness of Security and Operational Business Policies." University of Waterloo Symposium on Information Integrity and Information Systems Assurance, October 2013 pp 323–334.
 33. Fred McGarry, Don Cowan, Heather Moran, and Clynt King. "A Proposed App Guide to The Toronto 2015 Pan Am/Parapan Am Games that Also Celebrates Local Indigenous Culture." Fourth International Workshop on Human Computer Interaction, Tourism and Cultural heritage (HCITOH 2013).
 34. Heather Moran, Fred McGarry, Don Cowan, Dan McCarthy, Clynt King "Dreamcatcher, a First Nations Community Development Platform." Prato CIRN Community Informatics Conference 2012 " <http://ccnr.infotech.monash.edu/assets/docs/prato2012docs/moran-mcgarry.pdf> pp1-11.
 35. Holly L. Youden, Christine Barbeau, Daniel D. McCarthy, Leonard Tsuji, Don Cowan. "Collaborative Geomatics: A web-based tool for dynamic indigenous mapping" IKTC 2011 Windhoek Namibia.
 36. Donald Cowan, Paulo Alencar, Fred McGarry, Carlos Lucena, Ingrid Nunes "Asset-mapping Approaches to Web-based Collaborative Innovation" IEEE Web Intelligence Conference, pp 528 – 532, 2010
 37. Donald Cowan, Paulo Alencar, Fred McGarry, Carlos Lucena, and Ingrid Nunes. A Web-based Framework for Collaborative Innovation ISoLA 2010 - 4th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation Lecture Notes in Computer Science (LNCS) pp 447-461, 2010
 38. F. McGarry, D. Cowan, and D. McCarthy. Geometriche Collaborative per l'innovazione sociale in Le sfide cartografiche il lavoro editorial università. pp 354-362.
 39. Donald Cowan, Fred McGarry, Daniel McCarthy, "Collaborative Geomatics for Innovation in Health Research and Policy" Proceedings of Advances in Health Informatics Conference AHICS 2010 6 pages
 40. M. Mendonca, M. Branco, D. D. Cowan: S.P.L.O.T. – Software Product Lines Online Tools, Companion to the 24th ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA 2009, October 2009, Orlando, Florida, USA.
 41. NUNES, I., LUCENA, C.J.P., COWAN, D., ALENCAR, P.; Building Service-oriented User Agents using a Software Product Line Approach, in Stephen Edwards and Gregory Kulczycki, ed., Formal Foundations of Reuse and Domain Engineering (ICSR 2009), Vol. 5791 of Lecture Notes in Computer Science (LNCS), Springer Berlin / Heidelberg, Falls Church, USA, 2009.
 42. Vahid R. Karimi and Donald D. Cowan Verification of Access Control Policies for REA Business Processes, Proceedings of Security Aspects of Process and Services Engineering (SAPSE2009)
 43. Vahid R. Karimi and Donald D. Cowan Formal Modeling and Analysis of Security Policies Using REA Patterns International Workshop on Value Modeling and Business Ontologies February Royal Institute of Technology, Stockholm, Sweden 2009
 44. Femida GWADRY-SRIDHAR, Crystal SHARP, Donald COWAN, J. Malcolm ARNOLD, E-Health: Piloting an Interactive Web Portal to Educate Patients with Heart Failure – A Growing Global Problem IST Africa 2009

45. Vahid R. Karimi, Donald D. Cowan, Composition-based Modeling and Analysis of REA Business Patterns. 3rd REA Technology Workshop, Montpellier, France, June 2008 (CAiSE'08)
46. Vahid R. Karimi, Donald D. Cowan, Classification of REA Patterns using Formal Specifications. 3rd REA Technology Workshop, Montpellier, France, June 2008 (CAiSE'08)
47. M. Mendonca, A. Wasowski, K. Czarnecki, D.D Cowan,: Efficient Compilation Techniques for Large Scale Feature Models. In Proceedings of the 7th ACM International Conference on Generative Programming and Component Engineering (GPCE'08). Oct 2008, Nashville, Tennessee, USA.
48. M. Mendonca, T.T. Bartolomei, D.D Cowan,: Decision-Making Coordination in Collaborative Product Configuration, In Proceedings of the 2008 ACM Symposium on Applied Computing, Special track on Coordination Models, Languages and Applications, SAC '08. ACM, New York, NY. pp108-113.
49. COSTA, Andrew Diniz da; SILVA, Viviane Torres da; ALENCAR, P ;LUCENA, Carlos J P; COWAN Donald, D. . A Hybrid Diagnostic-Recommendation System for Agent Execution Applied to Ubiquitous Computing Systems. In: IV Workshop on Software Engineering for Agent-oriented Systems (SEAS 2008), 2008, Campinas. Anais do SEAS 2008, 2008.
50. SL Fenton, HD Covvey, DW Mulholland, DD Cowan, J Shamian, B Schroeder A Web-Based Communities of Practice Support System for Caregivers accepted for presentation at Medinfo 2007.
51. C. DiMarco, H. Dominic Covvey, P. Bray, D. Cowan, V. DiCiccio, E. Hovy, J. Lipa, D. Mulholland. The Development of a Natural Language Generation System For Personalized e-Health Information. Medinfo 2007: Proceedings of the 12th World Congress on Health (Medical) Informatics; Building Sustainable Health Systems.
52. S. Fenton, H.D. Covvey, D. Mulholland, D.D., Cowan, J. Shamian, B. Schroeder, A Web-Based Communities of Practice Support system for Caregivers 30th Canadian Medical and Biological Engineering Conference: Improving Medical Device Usability 2007
53. Malyk, W.J., Covvey, H.D., McKay, K., and Cowan D.D. A Dynamic Workflow Model for Healthcare. accepted Information Technology and Communications in Health (ITCH2007).
54. Fenton, S., Covvey, H.D., Mulholland, D., Cowan, D.D., Shamian, J. B. Schroeder, B. A Web-Based Communities of Practice Support System for Caregivers. Information Technology and Communications in Health (ITCH2007).
55. Mulholland, D., Covvey, H.D., Fenton, S., Cowan, D.D. A Primary Care Physician Webpace. accepted Information Technology and Communications in Health (ITCH2007).
56. Mendonca, M., Oliveira, T., Cowan, D.D. A Process-Centric Approach for Coordinating Product Configuration Decisions, 40th Hawaii International Conference on Systems Science, HICSS-40 2007, Software Technology track, IEEE Computer Society, January 2007, Waikoloa, Hawaii, USA.
57. Di Marco, C., Bray, P., Covvey, H.D., Cowan, D.D, Di Ciccio., V., Hovy, E., Lipa, J., Yang, C., Authoring and Generation of Individualized Patient Education Materials, AMIA 2006 Annual Symposium, Washington, DC, Nov. 11-15, 2006 Accepted.
58. Malyk, W., Covvey, H.D., McKay, K., Cowan, D.D., A Dynamic Workflow Model for Healthcare, AMIA 2006 Annual Symposium, Washington, DC, Nov. 11-15, 2006
59. Alencar, P.S.C., Oliveira, T., Cowan, D.D., Lucena, C.J.P., xTAO: Enabling a Declarative Approach to the Specification of Multi-Agent Systems, Software Engineering for Large-Scale Multi-Agent Systems (SELMAS - ICSE 2005); Lecture Notes in Computer Science (LNCS), vol. 3914, 2006.
60. Cowan, D.D., Covvey, H.D., Fenton, S., Mulholland, D., De Groot, M., Miller, J., Matyas, C., McGarry, F. "Sustainability Models for Web-based Information Systems Supporting Communities of Practice", Technology and Citizenship, 2006 Technology Symposium, McGill University, Montreal, Quebec, June 9-10, 2006.
61. Chrysanne DiMarco; Don Cowan; Peter Bray; Dominic Covvey; Vic DiCiccio; Eduard Hovy; Joan Lipa; and Doug Mulholland."A physician's authoring tool for generation of personalized health

-
- education in reconstructive surgery." American Association for Artificial Intelligence (AAAI) Spring Symposium on Argumentation for Consumers of Healthcare, Stanford University, March 2006.
62. Mendonca M., Oliveira T., Cowan D.D.: Collaborative and Coordinated Product Configuration, International Software Product Line Conference, SPLC 2006, Doctoral Symposium, August 2006, Baltimore, Maryland, USA.
 63. Mendonca, M., Alencar, P., Oliveira, T., and Cowan, D. 2005. Assisting aspect-oriented framework instantiation: towards modeling, transformation and tool support. In Companion to the 20th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (San Diego, CA, USA, October 16 - 20, 2005). OOPSLA'05. ACM Press, New York, NY, 94-95
 64. DiMarco, Chrysanne; Bray, Peter; Covvey, Dominic; Cowan, Don; DiCiccio, Vic; Hovy, Eduard; Lipa, Joan; and Yang, Cathy. "Authoring and generation of tailored preoperative patient education materials." *Workshop on Personalisation in e-Health, User Modelling Conference*, Edinburgh, Scotland, July 2005.
 65. Dong, J., Yang, S., Chung L., Alencar, P.S.C., Cowan, D.D., A COTS Architectural Component Specification Stencil for Selection and Reasoning, Proceedings of the Second International Workshop on Models and Processes for Evaluation of off-the-shelf Components (MPEC), in conjunction with ICSE, USA, May 2005.
 66. Oliveira, T.C., Alencar, P., Cowan, D. Filho, I.M., Lucena, C.J.P. xTAO: enabling a declarative approach to the specification of multi-agent systems Proceedings of the fourth international workshop on Software engineering for large-scale multi-agent 2005 p1-7.
 67. T. Oliveira, I.M. Filho, C.J.P. Lucena, P.S.C. Alencar, D.D. Cowan, "Enabling Model Driven Product Line Architectures," Second European Workshop on Model Driven Architecture (EWMDA), Canterbury, UK, September 7-8, 2004 8 pages.
 68. M. Nelson, T. Nelson, P.S.C. Alencar, D.D. Cowan, Exploring Problem Frame Concerns using Formal Analysis, accepted for the First International Workshop on Advances and Applications of Problem Frames (IWAAPF), Edinburgh, Scotland, May 2004.
 69. Alencar, P.S.C., Cowan, D.D., Mulholland, D.W., Mayfield, C., Disseminating and Monitoring Environmental Information through Community Information Systems, International Symposium on Environmental Software Systems (ISESS), Virginia, USA, May 18-21, 2004.
 70. J.Dong, P.S.C. Alencar, D.D. Cowan. "On Analysis of Design Component Contracts: A Case Study," accepted for Proceedings of IEEE International Conference on Software Technology and Engineering Practice (STEP2003), pp103-113, Amsterdam, The Netherlands, September 2003.
 71. J.Dong, P.S.C. Alencar, D.D. Cowan. "A Formal Framework for Design Component Contracts," Proceedings of the IEEE International Conference on Information Reuse and Integration (IRI), pp53-60, Las Vegas, US, October 2003
 72. B. Kalali, P.S.C. Alencar, D.D. Cowan. "A Service-Oriented Monitoring Registry," CASCON 2003 (the 13th Annual IBM Centers for Advanced Studies Conference), October 2003. pp107-121.
 73. H. D. Covvey, D. Zitner, D.M. Berry, D.D. Cowan, M. Shepherd. "Formal Structure for Specifying the Content and Quality of the Electronic Health Record," invited paper, Proceedings of the IEEE International Requirements Engineering Conference, Monterey Bay, California, September 2003. 7 pages.
 74. T. Oliveira, A. Garcia, P.S.C. Alencar, C.J.P. Lucena, D.D. Cowan. "A Generative Approach to Multi-Agent Systems," accepted the First Workshop on Declarative Agent Languages and Technologies (DALT'03), AAMAS 2003, Melbourne, Australia, 2003.
 75. B. Kalali, P.S.C. Alencar, D.D. Cowan. "NSPF: Designing a Notification Service Provider Framework for Web Services," Proceedings of the International Workshop on Web Services: Research, Standardization, and Deployment (WS-RSD), Lecture Notes in Computer Science (LNCS), no. 2593, 2003.

-
76. P.S.C. Alencar, T. Oliveira, D.D. Cowan, D. Mulholland. "Towards Monitored Data Consistency and Business Processing Based on Declarative Software Agents, Software Engineering for Large-Scale Multi-Agent Systems – Research Issues and Practical Applications," Garcia, A., Lucena, C. et al. (Eds), Lecture Notes in Computer Science (LNCS), vol. 2603, pp. 267-284, Springer, 2003.
 77. T. Oliveira, P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Feature-Driven Framework Instantiation," ECOOP'2003 Workshop on Modeling Variability for Object-Oriented Product Lines, Darmstadt, Germany, 2003.
 78. D.D. Cowan, B. Kalali, P.S.C. Alencar. "WSNF: Designing a Web Service Notification Framework for Web Services," accepted by the International Workshop on Web Services: Research, Standardization, and Deployment, WS-RSD'02, USA, 2002.
 79. D.D. Cowan, T. Oliveira, P.S.C. Alencar. "Towards a Declarative Approach to Framework Instantiation," Workshop on Declarative Meta Programming to Support Software Development Edinburgh, ASE'2002, UK, September 23rd 2002
 80. D.D. Cowan, J. Dong, P. S.C. Alencar. "Modeling and Analysis of Design Component Contracts in Logic Programming," accepted Third International Workshop on (Constraint) Logic Programming and Software Engineering to be held in Copenhagen, Denmark on July 2002.
 81. Maria Augusta V. Nelson, Donald D. Cowan, Paulo S. C. Alencar. "Geographic Problem Frames," 5th IEEE International Symposium on Requirements Engineering (RE 2001), 27-31 August 2001, Toronto, Canada; 01/2001
 82. D.D. Cowan, P.S.C. Alencar, T. Nelson. "Supporting the Verification of Crosscutting Concerns," 3rd Int. Conference on Metalevel Architectures and Separation of Concerns (Reflection'01), 2001, Lecture Notes in Computer Science (LNCS), vol 2192, pp153-169, Springer-Verlag, 2001.
 83. D.D. Cowan, P.S.C. Alencar, J. Dong, "The Verification of Hypermedia Design Composition," Conference on Object-Oriented Information Systems (OOIS'01) Conference on Complex Software Systems (ICCSS'01), 2001.
 84. D.D. Cowan, J. Dong, P.S.C. Alencar. "A Behavioural Analysis Approach to Pattern-Based Composition," OOIS 2001 The 7th International Conference on Object-Oriented Information Systems, (OOIS) 2001, Y. Wang, S. Patel, R.H. Johnston, (eds), pp 540-549 Springer Verlag.
 85. D.D. Cowan, P.S.C. Alencar, D.D. Cowan, T. Nelson. "Verifying Viewpoint-based Composition," ACM SIGPLAN - OOPSLA'00 Workshop on Multi-Dimensional Separation of Concerns, Minneapolis, USA, 2000.
 86. D.D. Cowan, P.S.C. Alencar, J. Dong. "Component Contract Templates – A Rigorous Approach for Component Specification and Composition Verification," ACM SIGPLAN - OOPSLA'00 Workshop on Component Contracts, Minneapolis, USA, 2000.
 87. D.D. Cowan, C. I. Mayfield, M. Joliat. "The roles of Community Networks in Environmental Monitoring and Environmental Informatics," Proceedings of Isess 2000.
 88. D.D. Cowan, J. Dong, P.S.C. Alencar. "Ensuring Structure and Behavior Correctness in Design Composition," IEEE International Conference on Engineering Computer Based Systems (ECBS2000), pp 279-287, April 2000 Edinburgh, UK.
 89. D.D. Cowan, T. Nelson, P.S.C. Alencar. "A Model for Describing Object-Oriented Systems from Multiple Perspectives," Foundational Aspects of Software Engineering (FASE2000), ETAPS2000 (the European Joint Conferences on Theory and Practice of Software), Lecture Notes in Computer Science (LNCS), vol 1783 pp237-248, Springer-Verlag - March 2000, Technical University of Berlin, Berlin, Germany.
 90. D.D. Cowan, K. Lichtner, P.S.C. Alencar. "A Higher-Order Logic Framework for Software Architecture Analysis," Proceedings of the IEEE Australian Software Engineering Conference (ASWEC2000), pp 149-157, IEEE Computer Society, April 2000, Australian National University, Canberra, ACT, Australia.

91. D.D. Cowan, K. Lichtner, P.S.C. Alencar. "An Extensible Model of Architecture Description," accepted for the ACM Symposium on Applied Computing (ACM SAC'2000), vol 1, pp 156-165, Special Track on Coordination Models, Languages and Applications, March 2000, Como, Italy.
92. D.D. Cowan, D.M. German. "Towards a unified catalog of hypermedia design patterns," HICSS' 2000.
93. D.D. Cowan, P.S.C. Alencar. "The Role of Formal Methods in Component-Based Software Engineering," ICSE Workshop on Component-Based Software Engineering, 21st ICSE, Los Angeles, 1999.
94. D.D. Cowan, T. Nelson, P.S.C. Alencar. "Towards a Formal Model of Object-Oriented Hyperslices," OOPSLA'99 Workshop on Multi-Dimensional Separation of Concerns, Denver, USA, 1999.
95. D.D. Cowan, P.S.C. Alencar. "A Framework for Community Networks: A COTS Case Study," Proceedings of the ICSE'99 Workshop on Commercial-Off-the-Shelf (COTS) Components, 21st ICSE, Los Angeles, 1999.
96. D.D. Cowan, P.S.C. Alencar, J. Dong, C.J.P. Lucena. "A Pattern-Based Approach to Structural Design Composition," Proceedings of the 23rd Annual International Computer Software and Applications Conference (COMPSAC'99), pp160-165, Phoenix, Arizona, 1999.
97. D.D. Cowan, D.M. German. "Formalizing the Specification of Web Applications," Proceedings of the International Workshop on the World Wide Web and Conceptual Modelling, Stephen W. Liddle (ed.), Springer Verlag, November 1999.
98. D.D. Cowan, J. Dong, P.S. C. Alencar. "Correct Composition of Design Components," ECOOP'99 Workshop on Component-Oriented Programming (WCOP'99), Lisbon, 1999.
99. D.D. Cowan, P.S.C. Alencar, T. Nelson. "Towards a formal model of object-oriented hyperslices," OOPSLA 1999 Workshop on Multi-Dimensional Separation of Concerns. Denver, USA.
100. D.M. German, D.D. Cowan, P.S.C. Alencar. "Three Hypermedia Design Patterns," 2nd Workshop in Hypermedia Development: Design Patterns in Hypermedia.
101. B. Fraser, J. Roberts, G. Pianosi, P.S.C. Alencar, D.D. Cowan, D.M. German, L. Nova. "Dynamic Views of SGML Tagged Documents," Proceedings of the SigDOC'99 Conference.
102. P.S.C. Alencar, D.D. Cowan, J. Dong. "A Component Specification Template for COTS-based Software Development" Proceedings of the ICSE'99 Workshop on Commercial-Off-the-Shelf (COTS) Components, 21st ICSE, Los Angeles, 1999. ICSE '99 COTS Workshop.
103. D.D. Cowan. "Community Networks: A Next Generation" in "Electronic Commerce Technology Trends: Challenges and Opportunities W. Kou and Y. Yesha Editors" IBM Press pp 41 - 53.
104. P.S.C. Alencar, D.D. Cowan, S. Crespo, M. F. Fontoura, C.J. Lucena. "OwlNet: An Object-Oriented Environment for WBE," Second Argentine Symposium on Object-Orientation (ASOO'98), 91-100, 1998.
105. P.S.C. Alencar, D.D. Cowan, C. Lucena, and L. Nova. "A Model for Gluing Components," 3rd International Workshop on Component-Oriented Programming, TUCS General Publication No. 10, 101-108, 1998.
106. P.S.C. Alencar, D.D. Cowan, L.C.M. Nova. "A Formal Theory for the Views Relationship," Northern Formal Methods Workshop '98
107. P.S.C. Alencar, D.D. Cowan, J. Dong, C.J.P. Lucena. "A Transformational Approach to Structural Design Assessment and Change," Proceedings of the Workshop on Techniques, Tools and Formalisms for Capturing and Assessing Architectural Quality in Object-Oriented Software, ECOOP'98 Workshop Reader, ACM SIGPLAN, 1998.
108. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova. "Gluing Components Together," ECOOP'98 Workshop Reader, ACM SIGPLAN, 1998.

-
- 109.P.S.C. Alencar, D.D. D.D. Cowan, M. Fontoura, C.J.P. Lucena. "Pragmatic Issues Behind Framework Design," Proc. of Workshop on Pragmatic Issues in Using Frameworks - Implications for Framework Design, OOPSLA'98, ACM SIGPLAN, Vancouver, BC, 1998.
 - 110.P.S.C. Alencar, D.D. Cowan, K.Lichtner. "Using View-Based Models to Formalize Architecture Description," accepted for the 3rd International Software Architecture Workshop (ISAW3) 1 and 2 November 1998, Orlando FL pp98-100.
 - 111.P.S.C. Alencar, D.D. Cowan, L.C.M. Nova. "Modeling the Design Pattern Application Process," Symposium on Software Technology '98
 - 112.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Using Viewpoints for Component-Based System Development," Proceedings of the Workshop on Component-Based Information Systems (CBISE'98), pp. 55-63, CAiSE'98,IFIP TC8, Pisa, Italy, June 1998.
 - 113.D.M German, D.D. Cowan, P.S.C Alencar. "A framework for formal design of hypertext applications," SBMIDIA '98, Rio de Janeiro, 1998.
 - 114.D.M German, D.D. Cowan, P.S.C Alencar. "A formal specification language for hypermedia applications," 1st Workshop on Hypermedia Development Processes, Methods and Models. Pittsburgh, 1998.
 - 115.M.A.V. Nelson, P.S.C. Alencar, D.D. Cowan. "An Approach to Formal Specification and Verification of Map-Centered Applications," ISESS'98 Workshop on Design Principles for Environmental Information Systems, 1998.
 - 116.P.S.C. Alencar, D.D. Cowan, T. Nelson, L.C.M. Nova, M. Radaideh, R. Schauer. "CASCON '97 Workshop Report: Patterns and Frameworks"
 - 117.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, T. Nelson. "Viewpoints as an Evolutionary Approach to Software System Maintenance," accepted for the International Conference on Software Maintenance (ICSM'97), Bari, Italy, September 29 - October 3, 1997.
 - 118.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, T. Nelson. "A Viewpoint-Based Approach to Software System Evolution," accepted for the Process Modelling and Empirical Studies of Software Engineering (PMESSE'97) Workshop at the International Conference on Software Engineering (ICSE'97).
 - 119.P.S.C. Alencar, D.D. Cowan, T.R. Grove, M.A.V. Nelson. "An Approach to Hypermap-Based Applications" Proceedings of the Second International Symposium on Environmental Software Systems (ISESS'97), Whistler, British Columbia, April 28 - May 1, 1997.
 - 120.D.D. Cowan, D.M. German, E. Mackie. "LivePAGE - A multimedia database system to support World-Wide Web development," Proceedings of the Second Australian Document Computing Symposium, Melbourne, Australia, April 5, 1997.
 - 121.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, M.A.V. Nelson. "An approach to hypermap-based applications," In Proceedings of International Symposium on Environmental Software Systems, (ISESS'97) Chapman & Hall, 1997.
 - 122.D.M. German, D.D. Cowan. "Towards the Definition of Semantic Hyperstructures to allow Reader-defined Instantiation of Hypertext Systems," Proceedings of the Eighth ACM International Hypertext Conference (Hypertext'97), Southampton, UK, April 6-11, 1997.
 - 123.D.D. Cowan, D.M. German. "Hypermedia Design Patterns," accepted for the 7th Mini Euro Conference on DSS, Groupware, Multimedia and Electronic Commerce, Bruges, Belgium, 1997.
 - 124.D.M. German, D.D. Cowan. "A federated database for hypermedia development for the WWW," accepted for the International Symposium on Cooperative Database Systems for Advanced Applications (1996).
 - 125.D.M. German, D.D. Cowan. "SGML-Lite-An SGML-based Programming Environment for Literate Programming," accepted at the Fourth International Symposium on Applied Corporate Computing (1996).

-
- 126.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, T. Nelson. "Towards a Formal Link Between Viewpoints in Analysis and Implementation," accepted at the Object-Oriented Programming Systems, Languages and Applications Conference, Workshop 19: Subjects and Viewpoints throughout the Lifecycle (OOPSLA'96).
 - 127.P.J. Bumbulis, P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Validating Properties of Component-based Graphical User Interfaces ," Proceedings of 3rd Eurographics Workshop on Design, Specification, Verification of Interactive Systems (DSV-IS'96).
 - 128.D.D. Cowan, C.I. Mayfield. "A Design Exercise for a World Wide Web Based Graduate Course in Environmental Information Systems," 8th International Conference of Computing and Information (ICCI'96), June 19-22, Journal of Computing and Information, Volume 2, Number 1, pgs 1336-1343.
 - 129.D.D. Cowan, P.M. Koch, C.I. Mayfield, D.A. Swayne. "Implementing an Information Framework for Environmental Research and Management," accepted at the Seventh International Conference on Computing and Information (ICCI'95).
 - 130.D.D. Cowan, D.C.L. Lam, C.I. Mayfield, D.A. Swayne. "Integration of GIS with Other Software Systems: Integration versus Interconnection," Proceedings of Third International Conference/Workshop on Integrating GIS and Environmental Modeling.
 - 131.P.S.C. Alencar, D.D. Cowan, T. Kunz, C.J.P. Lucena. "A Formal Architectural Design Patterns-Based Approach to Software Understanding," Proceedings of the 4th Workshop on Program Comprehension, March 1996 pp 154-163.
 - 132.Paulo Alencar, Donald Cowan, Carlos Lucena. A Formal Approach to Architectural Design Patterns. Proceedings of the Third International Symposium of Formal Methods Europe, LNCS 1051, Springer, pp. 576-594, 1996.
 - 133.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "A Formal Model to Support Subject-Oriented Programming," accepted as a position paper for OOPSLA'95, Workshop #32 - Subjectivity in Object-Oriented Systems.
 - 134.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Abstract Data Views as a Formal Approach to Adaptable Software," accepted as a position paper for OOPSLA'95, Workshop #4 - Adaptable and Adaptive Software.
 - 135.D.D. Cowan, C.J.P. Lucena, G. Rossi, D. Schwabe. "An Object-Oriented Model for Designing the Human-Computer Interface of Hypermedia Applications," Proceedings of the International Workshop on Hypermedia Design, Montpellier France, June 1995 pp123-143.
 - 136.P.S.C. Alencar, P.J. Bumbulis, D.D. Cowan, C.J.P. Lucena. "Combining Formal Techniques and Prototyping in User Interface Construction and Verification," Proceedings of the 2nd Eurographics Workshop on Design, Specification, Verification of Interactive Systems (DSV-IS'95).
 - 137.D.D. Cowan, P.M. Koch, C.I. Mayfield, D.A. Swayne. "Implementing an Information Framework for Environmental Research and Management," Proceedings of ICCI 95.
 - 138.D.D. Cowan, P.M. Koch, C.I. Mayfield, D.A. Swayne. "An Information Framework for Environmental Research and Management," Proceedings of ISESS 95.
 - 139.P.S.C. Alencar, P.J. Bumbulis, D.D. Cowan, C.J.P. Lucena. "A framework for prototyping and verifying user interfaces," Proceedings of CHI'95 Workshop on Formal Specification of User Interfaces. 3 pages.
 - 140.L.M.F. Carneiro-Coffin, M.H. Coffin, D.D. Cowan, C.J.P. Lucena. "State-Machine-Based Approach for User Interface Specification," Proceedings of CHI'95 Workshop on Formal Specification of User Interfaces. 4 pages.
 - 141.H. Afsarmanesh, D.D. Cowan, C.J.P. Lucena, J.R. Silva. "A Concurrent Approach to the Design of Flexible Manufacturing Systems," Proceedings of the IEEE/ECLA/IFIP International Conference on Architectures and Design Methods for Balanced Automation Systems, July 1995, Brazil.

-
- 142.D.D. Cowan, C.J.P. Lucena, G. Rossi, D. Schwabe. "Building the HCI of Hypermedia Applications. The Abstract Data Views Approach," Proceedings of the International Conference on HCI (HCI'95), Japan, July 1995.
- 143.P.S.C. Alencar, P.J. Bumbulis, D.D. Cowan, C.J.P. Lucena. "A framework for prototyping and mechanically verifying user interfaces," Proceedings of the Seventh International Workshop on Computer Aided Software Engineering 1995 pp280-288.
- 144.D.D. Cowan, D.M. German. "Experiments with the Z Interchange Format and SGML," Proceedings the Z User Workshop - ZUM'95, Springer Verlag Workshops in Computing. 10 pages.
- 145.P.S.C. Alencar, P.J. Bumbulis, D.D. Cowan, C.J.P. Lucena. "A framework for machine-assisted user interface verification," Proceedings of the Fourth International Conference on Algebraic Methodology and Software Technology (AMAST'95). Springer Verlag Lecture Notes in Computer Science.
- 146.P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, C.M. Nova. "Formal Specification of Reusable Interface Objects," Proceedings of the Symposium on Software Reusability (SSR'95) ACM Press, pp 88-96.
- 147.D.D. Cowan, M.W.F.P. Lucena. "The KeyPal project and Internet Resources: Supporting Cooperative Work by Children in Different Countries," Proceedings of the XX Latin-American Conference on Computer Science and Information Systems, Mexico City, September 1994. 13 pages.
- 148.P.S.C. Alencar, L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena. "Towards a Logical Theory of ADVs," Proceedings of the Workshop on the Logical Foundations of Object Oriented Programming, ECOOP94.
- 149.D.D. Cowan, D.M. German, C.J.P. Lucena, A. von Staa. "Enhancing Code for Readability and Comprehension Using SGML," Proceedings of ICSM 94, pp. 181-190.
- 150.D.D. Cowan, C.J.P. Lucena. "Abstract Data Views: Motivation, Current Proposal and Research Trends," invited paper Proceedings of the XX Latin-American Conference on Computer Science and Information Systems, Mexico City, September 1994. 13 pages.
- 151.P.S.C. Alencar, L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena. "The Semantics of Abstract Data Views: A Design Concept to Support Reuse-in-the-Large," Proceedings of the Colloquium on Object Orientation in Databases and Software Engineering (ACFAS). 17 pages.
- 152.P.S.C. Alencar, L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena. "The Semantics of Abstract Data Views: A Design Concept to Support Reuse-in-the-Large," Pre-Proceedings of the Colloquium on Object Orientation in Databases and Software Engineering (ACFAS), Kluwer Press. 22 pages.
- 153.L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena, D. Smith. "An Experience Using JASMINUM - Formalization Assisting with the Design of User Interfaces," Proceedings of the Workshop on the Software Engineering and Human -Computer Interaction: Joint Research Issues, Sorrento Italy, May 1994. Springer Lecture Notes in Computer Science, pp. 139-144.
- 154.L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena, D. Smith. "An Experience Using JASMINUM - Formalization Assisting with the Design of User Interfaces," Extended Abstract Pre-Proceedings of the Workshop on the Software Engineering and Human -Computer Interaction: Joint Research Issues, Sorrento Italy, May 1994, pp. 139-144.
- 155.D.D. Cowan, T.R. Grove, C.I. Mayfield, R.T. Newkirk, D.A.B. Swayne. "Managing Environmental Information - An Extension to the GIS Architecture," ACM Conference on Information and Knowledge Management, Workshop on Advances in Geographic Information Systems (1993) 10 pages.
- 156.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "Abstract Data Views: a Formal Approach for Designing User Interface Objects," Workshop on Specification of Behavioral Semantics in Object-Oriented Information Modeling, OOPSLA, 1993, pp. 17-22.
- 157.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "A Rationale for Both Nesting and Inheritance in Object-Oriented Design," VII Simposio Brasileiro de Engenharia de Software, 1993, pp. 223-237.

-
- 158.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "ADVcharts: a Graphical Specification for Abstract Data Views," Proceedings of CASCON 93, Volume II, pp. 84-96.
- 159.D.D. Cowan, T.R. Grove, C.I. Mayfield, R.T. Newkirk, D.A.B. Swayne. "An Integrative Framework for Environmental Management and Research," Proceedings of Second International Conference on Integrating Geographic Information Systems and Environmental Modelling (1993), 6 pages.
- 160.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "ADVcharts: a Visual Formalism for Describing Abstract Data Views," Proceedings of the ECOOP'93 Workshop on Applications of Object-Oriented Methods (1993), 7 pages.
- 161.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "ADVcharts: a Visual Formalism for Interactive Systems," Software Engineering in Human Computer Interaction - Editors M. Harrison and C. Johnson, (1993), 29 pages.
- 162.L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "ADVcharts: a Visual Formalism for Interactive Systems - Position Paper," SIGCHI Bulletin, April 1994, pp. 74-77.
- 163.D.D. Cowan, C.J.P. Lucena, A.B. Potengy. "A Programming Model for User Interface Compositions," Proceedings of the V Brazilian Symposium on Computer Graphics and Image Processing, SIBGRAPI V, 1992. 10 pages.
- 164.D.D. Cowan, R. Ierusalimschy, T.M. Stepien. "Programming Environments for End-Users," Proceedings of IFIP 92, Volume III, pp. 54-60.
- 165.D.D. Cowan, T.M. Stepien. "Electronic Communication and Distance Education," Supplementary Proceedings of the Fourth International Conference on Computers and Learning (1992), pp. 14-16.
- 166.D.D. Cowan, T.M. Stepien. "Computer/Communication Networks in Education," Encyclopedia of Telecommunications, Vol 4 (1992), Marcel Dekker, pp. 331-348.
- 167.P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "Abstract Syntax Notation 1 (ASN.1)," Proceedings of the International Symposium on Communications ISCOM'91 (1991), pp. 726-730.
- 168.P.J. Bumbulis, D.D. Cowan, E.M. Giguere, T.M. Stepien. "Integrating UNIX within a Microcomputer-Oriented Development Environment," Proceedings of the 5th Annual Conference on Large Installation Systems Administration (LISA) (1991), pp. 29-35.
- 169.D.D. Cowan, T.M. Stepien, R.G. Veitch. "A Network Operating System for Interconnected LANs with Heterogeneous Data-Link-Layers," Proceedings of the 13th Conference on Local Computer Networks, October 1988, pp. 99-105.
- 170.J.P. Black, D.D. Cowan, V.A. Dyck, S.L. Fenton, C.K. Knapper, T.M. Stepien. "Portable Computers and Distance Education," Proceedings ICDE World Conference 1988, pp. 107-111.
- 171.J.P. Black, D.D. Cowan, V.A. Dyck, S.L. Fenton. "The Challenges of Teaching Computer Science by Distance Education," International Council for Distance Education Bulletin, Volume 18, September 1988, pp. 26-33.
- 172.D.D. Cowan, S.L. Fenton, A. Pitman, T.M. Stepien. "Diversity, Accessibility and Adaptability - Data Communication Needs for Higher Education, the University of Waterloo Experience," Proceedings of ICC88, pp. 1576-1580.
- 173.D.D. Cowan, C. Ian Kyer. "High Tech and Dispute Resolution - Arbitration or Other Methods," Proceedings of the Seminar on "High Tech & Dispute Resolution," International Bar Association, Cambridge England, September 1987. 45 pages. The presentation at the conference also contained a video showing D.D. Cowan as an expert witness.
174. "Networks for Education at the University of Waterloo," Proceedings of the Scientific Symposium on "Distributed Processing in Education and Research," Springer Verlag, 1986. 10 pages.
- 175.D.D. Cowan, D.D. Hui, S.T. Vuong. "A Tool for Protocol Validation Via Reachability Analysis," Proceedings of the IFIP Workshop on "Protocol Specification, Testing and Verification," June 1986, pp. 2-26 to 2-39.

-
- 176.D.D. Cowan, G. De V. Smit. "Combining Interactive Document Editing With Batch Document Formatting," Proceedings of the International Conference on Text Processing and Document Manipulation EP86, Nottingham England, April 1986, pp. 140-153.
- 177.D.D. Cowan, S. Fenton, J.W. Graham, T.M. Stepien. "The University of Waterloo Personal Computing Project," Proceedings of the IBM 1985 University Conference, November 1985. 12 pages.
- 178.D.D. Cowan, C.J.P. Lucena, R.C.B. Martins. "Data-Driven Prototyping and Implementation of File Processing Programs using the Data Transform Method," Proceedings of the IEEE International Symposium on New Directions in Computing, Norway, August 1985. 10 pages.
- 179.D.D. Cowan, T.A. Wilkinson. "Software Portability," Proceedings of the Canadian Industrial Computer Society Conference, May 1984, pp. 68-1 to 68-7.
- 180.D.D. Cowan, C.J.P. Lucena, R.C.B. Martins, and P.A.S. Veloso. "The Data Transform Programming Method: An Example For File Processing Problems," Proceedings of the Seventh International Conference on Software Engineering, Orlando, Florida, March 1984, pp. 388-397.
- 181.D.D. Cowan, S.T. Vuong. "UNISPEX - A Unified Model for Protocol Specification and Verification," Proceedings IEEE INFOCOM 84 Conference San Francisco, April 1984, pp. 318-327.
- 182.D.D. Cowan, C.J.P. Lucena, R.C.B. Martins, P.A.S. Veloso. "A Theoretical Proposal to a CASD System Extending Jackson's Method," Proceedings International Conference on Advanced Automation, December 1983, Taipei, R.O.C., pp. 144-153.
- 183.D.D. Cowan, S.T. Vuong. "Reachability Analysis of Protocols with FIFO Channels," Proceedings ACM SIGCOMM 83 Symposium on Communications Architecture and Protocols, Austin Texas, April 1983, pp. 49-57.
- 184.D.D. Cowan, J.W. Graham. "Waterloo Microcomputer Systems for the 1980's," Invited Paper ACM 1982 Annual Conference, Proceedings of the ACM 1982 National Conference, pp. 13-17.
- 185.D.D. Cowan, S.T. Vuong. "Protocol Validation Via Reachability Analysis with Non-FIFO Channels," IEEE COMPCON Fall Washington D.C., Sept 1982, pp. 267-276.
- 186.D.D. Cowan, S.T. Vuong. "A Decomposition Method for the Validation of Structured Protocols," Proceedings of Infocom 82 IEEE Computer Society, pp. 209-220.
- 187.D.D. Cowan, C.C. Gotlieb. "A Cooperative Effort in Computer Education: The CIDA/COMBRA Experience," invited paper, Proceedings of the International Seminar on Computers in Developing Nations, Melbourne Australia, 1980, North Holland, pp. 245-255.
- 188.D.D. Cowan, H. Rudin, C. West, P. Zafiropulo. "On Analyzing and Designing Protocols," Proceedings EUROCON 80, Stuttgart, North Holland.
- 189.D.D. Cowan, N. Link, H. Rudin, H. Walther and P. Zafiropulo. "Automated Protocol Synthesis Via Graphics," Proceedings International Conference on Computer Communications, Atlanta Georgia, October 1980, pp. 391-396.
- 190.D.D. Cowan, H. Rudin, P. Zafiropulo. "Towards Synthesizing Synchronous Two Process Interactions," 1979 IEEE-NBS Computer Networking Symposium, Gaithersburg Maryland, pp. 169-175.
- 191.D.D. Cowan, P. Janson, C.J. Jenny, F. Kuemmerle, H.R. Mueller, E.H. Rothauser. "Z-1 Establishment Information System Architecture," IBM Confidential IBM Symposium of Distributed Architecture and Interconnected Systems, New York, March 16-30, 1979, Proceedings of the IBM Corporation Technical Symposium on Distributed Architecture, pp. 305-324 (1979).
- 192.D.D. Cowan, C.J.P. Lucena. "Some Thoughts on the Construction of Programs - A Data Directed Approach," Proceedings of the Jerusalem Conference on Information Technology, August, 1978.
- 193.D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch. "The Potential Impact of Minicomputers on Secondary and Post-secondary Education," Seventh Ontario Universities Computing Conference, June, 1976.

- 194.D.D. Cowan, J.W. Graham, J.W. Welch. "The Efficient Representation of Inverted Lists," Seventh Southeastern Conference on Combinatorics, Graph Theory, and Computing, February, 1976.
- 195.D.D. Cowan, R.C. Mullin, R.G. Stanton. "Counting Algorithms for Connected Labelled Graphs," Proceedings of the 6th Southeastern Conference on Combinatorics, Graph Theory and Computing, 1975, pp. 225-237.
- 196.D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch. "Development of Educational Software using the DEC PDP-11," ACM SIGMINI/SIGPLAN Interface Meeting on Programming Systems in the Small Processor Environment, March, 1976, pp. 109-112.
- 197.V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton. "A Partial Census of Generalized Moore Graphs," invited paper, Proceedings of the Australian National Combinatorics Conference Combinatorics III, Springer Verlag, 1974, pp. 1-27.
- 198.J.A. Bate, D.D. Cowan, R.G. Stanton. "Minimal Sequences with Permutation Subsequences," Congress Numerantium VIII, Proceedings of the Fourth Southeastern Conference on Combinatorics, Graph Theory and Computing, 1973, pp. 151-162.
- 199.V.G. Cerf, D.D. Cowan, R.C. Mullin, R.G. Stanton. "Computer Networks and Generalized Moore Graphs," Proceedings of the Manitoba Conference on Numerical Mathematics, 1973, pp. 379-398.
- 200.F.J. Burkowski, D.D. Cowan. "The Numerical Solution of Integral Equations with Deviating Arguments," Proceedings Third Southeastern Conference on Combinatorics, Graph Theory and Computing, 1972, pp. 143-165.
- 201.L.O. James, R.G. Stanton, D.D. Cowan. "Graph decomposition for undirected graphs," Proc. Third Southeastern Conf. on Combinatorics, Graph Theory, and Computing Boca Raton (1972),pp 281-290.
- 202.F.J. Burkowski, D.D. Cowan. "The Numerical Derivation of Periodic Solutions of a Quasilinear Differential Equation," Proceedings of the Second Manitoba Conference on Numerical Mathematics, 1972, pp. 101-117.
- 203.D.D. Cowan, J.W. Graham. "Design Characteristics of the WATFOR Compiler," invited paper, ACM Sigplan Proceedings of the Symposium on Compiler Optimization at University of Illinois, July, 1970, pp. 25-36.
- 204.G.C. Bonham, D.D. Cowan. "Computer Education in Ontario Secondary Schools," Proceedings of the IFIP World Conference on Computer Science Education, Summer 1970. 10 pages.
- 205.D.D. Cowan "Computer Science in Canada," invited paper, Proceedings of the Conference, Development and Organization Criteria for University Curricula in Computer Science, Milan, Italy, July 1969. 10 pages.

PAPERS SUBMITTED TO REFEREED CONFERENCES

1. Davy Baía, Carlos Lucena, Rafael Rocha, Donald Cowan, Paulo Alencar. "Taming Dynamic Aspects of the Software Project Management through Multi-Agent Based Simulations: Scope Management Representation and Visualization" to IEEE/WIC/ACM Intelligent Agent Technology Conference 2015

UNREFEREED PUBLICATIONS (133 Total)

1. Nathalia Nascimento, Paulo Alencar, Carlos Lucena, Donald Cowan. "Machine Learning-based Variability Handling in IoT Agents." arXiv:1802.03858v1
2. Portugal, I., Alencar, P., Cowan, D., Developing a Spatial-Temporal Contextual and Semantic Trajectory Clustering Framework, CoRR abs/1712.03900, 2017.
3. Donald Cowan, Paulo Alencar, Doug Mulholland, Fred McGarry and Colin Mayfield. The United Nations and Open Data." Technical Report CS-2017-07, David R. Cheriton School of Computer Science, University of Waterloo, 2017.
4. Donald Cowan, Paulo Alencar, Kyle Young, Bryan Smale, Ryan Erb and Fred McGarry. "The Socially Smart Community — Practical Uses of Community-level Socio-economic Indicators." Technical Report CS-2017-06, David R. Cheriton School of Computer Science, University of Waterloo, 2017.

5. Donald Cowan. "Data-intensive Applications Using the WIDE Software Platform." Technical Report CS-2017-05, David R. Cheriton School of Computer Science, University of Waterloo, 2017.
6. Donald Cowan, Paulo Alencar, Fred McGarry, Mark Palmer, Trevor Boston, and Rigel Rozanski. "Big Open Data for Environmental Information Systems." Technical Report CS-2015-19, David R. Cheriton School of Computer Science, University of Waterloo, 2015.
7. Ivens Portugal, Paulo Alencar, Donald Cowan. "Requirements Engineering for General Recommender Systems" <http://arxiv.org/abs/1511.05262>, password = qfd8e
8. The Use of Machine Learning Algorithms in Recommender Systems: A Systematic Review <http://arxiv.org/abs/1511.05263>, password = 47p7k
9. Donald Cowan, Paulo Alencar, Fred McGarry and Mark R. Palmer. "Adapting to Climate Change - An Open Data Platform for Cumulative Environmental Analysis and Management." Technical Report CS-2015-06, David R. Cheriton School of Computer Science, University of Waterloo, 2015.
10. Marx Viana, Paulo Alencar, Donald Cowan, Carlos J. P. de Lucena.. "The Development of Normative Autonomous Agents: an Approach." Technical Report CS-2015-05, David R. Cheriton School of Computer Science, University of Waterloo, 2015.
11. Davy Baia, Carlos J. P. Lucena, Paulo Alencar, Rafael Rocha, and Donald Cowan. "Multi-Agent Based Simulation in Software Project Management: Scope Management Representation and Visualization." Technical Report CS-2014-21, David R. Cheriton School of Computer Science, University of Waterloo, 2014.
12. Davy Baia, Carlos J. P. Lucena, Donald Cowan, Pierre Bommel, Carolina Valadares and Toacy Oliveira "A MultiAgent-Based Simulation Model to Support Management Decision Making in Software Development" Technical Report CS-2014-04, David R. Cheriton School of Computer Science, University of Waterloo, 2014.
13. Carolina Valadares, Donald Cowan, Carlos Lucena and Davy Baia "A Multiagent Based Context-Aware and Self-Adaptive Model for Virtual Network Provisioning." Technical Report CS-2014-03, David R. Cheriton School of Computer Science, University of Waterloo, 2014.
14. Donald Cowan, Paulo Alencar, and Fred McGarry. "Perspectives on Open Data: Issues and Opportunities" Technical Report CS-2014-01, David R. Cheriton School of Computer Science, University of Waterloo, 2014.
15. Donald Cowan, Terry Wilkinson, Douglas Mulholland, Paulo Alencar, Fred McGarry "A Web-based Toolkit for Collaborative Innovation." Technical Report CS-2012-23, David R. Cheriton School of Computer Science, University of Waterloo, 2012.
16. H. Dominic. Covey, Donald D. Cowan, Paulo Alencar, William Malyk, Joel So, D. Henriques, and Shirley L. Fenton A Framework for Adaptive Workflow (Model Human Behavior - Don't Constrain It!) Technical Report CS-2012-06, David R. Cheriton School of Computer Science, University of Waterloo, 2012.
17. Donald Cowan, Paulo Alencar, Fred McGarry, Carlos Lucena. A Web-based Framework for Collaborative Innovation Technical Report CS-2012-02, David R. Cheriton School of Computer Science, University of Waterloo, 2012.
18. D.D. Cowan, F.M. McGarry, H. Moran, D.D. McCarthy, C. King. Information Technology to Support Indigenous Peoples D.D. Cowan, F.M. McGarry, H. Moran, D.D. McCarthy, C. King. Information Technology to Support Indigenous Peoples Technical Report CS-2011-28, David R. Cheriton School of Computer Science, University of Waterloo, 2011.
19. COSTA, A.D.; LUCENA, C.J.P.; SILVA, V.T.; COWAN, D.D.; ALENCAR, P.S.C.; KEEDWELL, B.G. Using reputations to diagnose and recommend execution plans to software agents in ubiquitous computing systems. Technical Paper published in Pontifical Catholic University of Rio de Janeiro. 20 pages. Available at ftp://ftp.inf.puc-rio.br/pub/docs/techreports/08_33_costa.pdf.

20. D.D. Cowan, P.S.C. Alencar, D.B. Brown, H.D. Covvey, I. Gimenes, C.J.P. Lucena, Bill Malyk, D.W. Mulholland, A. Robins, K. Young "Software System Generation from an Enterprise Service Model." Technical Report CS-2007-04, David R. Cheriton School of Computer Science, University of Waterloo, 2007.
21. D.D. Cowan, J.E. MacNeill, H.D. Covvey, S. Fenton, "EPHIP: An Innovative Program for Health Informatics Education," University of Waterloo, Misy's Healthcare Systems.
22. Dong, J., Alencar, P.S.C., Cowan, D.D., Automating the Analysis of Design Component Contracts, Technical Report UTDCS-01-04, Department of Computer Science, University of Texas at Dallas, 2004.
23. V. Silva, C.J.P. Lucena, P.S.C. Alencar, D.D. Cowan, "A Model-Based Transformational Approach for Implementing Multi-Agent Systems," Technical Report CS-04-12, School of Computer Science, University of Waterloo, 2004.
24. T.C. Oliveira, P.S.C. Alencar, C. Lucena, V. Silva, A. Garcia, D.D. Cowan. "xTAO: An Extensible Representation to Multi-Agent Systems," Technical Report CS-2003-02, School of Computer Science, University of Waterloo, 2003.
25. M. Hoyt, A. Pidduck, P.S.C. Alencar, D.D. Cowan. "Process-Based Component Contract Specification and Analysis," Technical Report CS-2002-18, School of Computer Science, University of Waterloo, 2002.
26. K. Lichtner, P.S.C. Alencar, D.D. Cowan. "A Framework for Specifying Software Architectures," Technical Report CS-2002-19, School of Computer Science, University of Waterloo, 2002.
27. K. Lichtner, P.S.C. Alencar, D.D. Cowan. "A Framework for Machine-Assisted Software Architecture Validation," Technical Report CS-2002-20, School of Computer Science, University of Waterloo, 2002.
28. J. Dong, P.S.C. Alencar, D.D. Cowan. "Modeling and Analysis of Design Component Contracts in Logic Programming," Technical Report CS-2002, School of Computer Science, University of Waterloo, 2002.
29. B. Kalali, P.S.C. Alencar, D.D. Cowan. "WSNF: Designing a Web Service Notification Framework for Web Services," Technical Report CS-2002-24, School of Computer Science, University of Waterloo, 2002.
30. T. Oliveira, P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Process-Based Representation and Analysis of Framework Instantiation," Technical Report CS-2002, School of Computer Science, University of Waterloo, 2002.
31. P.S.C. Alencar, T. Oliveira, D.D. Cowan, D. Mulholland. "Towards Data Consistency and Business Processing Based on Declarative Software Agents," Technical Report CS-2002, School of Computer Science, University of Waterloo, 2002. D.D. Cowan, Nelson, T., P.S.C. Alencar, Supporting the Verification of Crosscutting Concerns, Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
32. D.D. Cowan, P.S.C. Alencar, T. Oliveira, C.J.P. Lucena. "A Process-Oriented Approach to the Representation and Analysis of Framework Instantiation," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
33. D.D. Cowan, M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar. "On Expressiveness: Representing Frameworks at the Design Level," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
34. D.D. Cowan, M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar. "An Environment to Support Framework Development," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
35. D.D. Cowan, M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar. "Reasoning about Frameworks at the Design Level," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.

36. D.D. Cowan, J. Dong, P.S.C. Alencar. "Correct Composition of Design Components," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
37. D.D. Cowan, P.S.C. Alencar, B. Fraser, D.M. German, L. Nova, G. Pianosi, J. Roberts. "Dynamic Views of SGML Tagged Documents," Technical Report CS99, Computer Science Department, University of Waterloo, 1999.
38. D.D. Cowan, D.M. German, L. Nova, P.S.C. Alencar. "Requirements for Dynamic Documents over the Web," Technical Report CS00, Computer Science Department, University of Waterloo, 2000.
39. D.D. Cowan, P.S.C. Alencar, D.M. German, L.C.M. Nova, G. Pianosi, J. Roberts, B. Fraser. "Open Help Systems Support Through Databases: the LivePAGE Approach," Technical Report CS00, Computer Science Department, University of Waterloo, 2000.
40. D.D. Cowan, M.A. Nelson, P.S.C. Alencar. "A Multi-frame Approach to Requirements Specification of Geographic Applications," Technical Report CS00, Computer Science Department, University of Waterloo, 2000.
41. D.D. Cowan, P.S.C. Alencar, K. Lichtner. "An Extensible Model of Architecture Description," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.
42. D.D. Cowan, P.S.C. Alencar, P. Bumbulis. "Mechanizing the Verification of Database Recovery Mechanisms," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
43. D. D. Cowan, P.S.C. Alencar, P. Bumbulis. "The Verification of Group Security Policies and Protocols," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
44. D.D. Cowan, L.C.M. Nova, P.S.C. Alencar. "The Verification of Extended UML Object Models Using Views Using PVS," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
45. D.D. Cowan, L.C.M. Nova, P.S.C. Alencar. "The Formalization and Analysis of Extended UML Object Models Using Views," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
46. D.D. Cowan, P.S.C. Alencar, D.M. German, L. Nova. "A Systematic Approach to Dynamic Documentation Over the Web," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
47. D.D. Cowan, P.S.C. Alencar, D.M. German. "An Access control-based model for Hypertext applications - Dynamic documentation over the Web," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
48. D.D. Cowan, D.M. German, P.S.C. Alencar. "Analyzing Dynamic Models for Documents over the Web - A Model Checking Application," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
49. P.S.C. Alencar, D.D. Cowan, D.M. German, L.C.M. Nova, J. Roberts. "Hypermedia Documentation - Roles and Processes," Technical Report CS00, Computer Science Department, University of Waterloo, 2000.
50. D.D. Cowan, P.S.C. Alencar, D.M. German, L.C.M. Nova, J. Roberts. "Theoretical Solutions to Hypermedia Documentation Issues," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
51. D.D. Cowan, P.S.C. Alencar, D.M. German, L.C.M. Nova, J. Roberts. "Practical Solutions to Hypermedia Documentation Issues," Technical Report CS01, Computer Science Department, University of Waterloo, in preparation, 2001.
52. D.D. Cowan, L.C.M. Nova, P.S.C. Alencar. "Extending UML with Views," Technical Report CS01, Computer Science Department, University of Waterloo, 2001.

53. D.D. Cowan, J. Dong, P.S.C. Alencar. "The Verification of Hypermedia Design Composition," Technical Report CS2000-20, Computer Science Department, University of Waterloo, 2000.
54. D.D. Cowan, K. Lichtner, P.S.C. Alencar. "A Framework for Software Architecture Verification," Technical Report CS99-26, Computer Science Department, University of Waterloo, August 1999.
55. P.S.C. Alencar, D.D. Cowan, B. Fraser, D.M. German, L. Nova, G. Pianosi, J. Roberts. "Dynamic Views of SGML Tagged Documents," Technical Report CS99, Computer Science Department, University of Waterloo, 1999.
56. P.S.C. Alencar, D.D. Cowan, J. Dong, C.J.P. Lucena, "An Evolutionary Approach to Structural Design Composition," Technical Report CS99-16, Computer Science Department, University of Waterloo, 1999.
57. M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar, D.D. Cowan. "On Expressiveness: Representing Frameworks at the Design Level," Technical Report CS99-, Computer Science Department, University of Waterloo, 1999.
58. M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar, D.D. Cowan. "An Environment to Support Framework Development," Technical Report CS99-, Computer Science Department, University of Waterloo, 1999.
59. M.C. Fontoura, C.J.P. Lucena, P.S.C. Alencar, D.D. Cowan. "Reasoning about Frameworks at the Design Level," Technical Report CS99-, Computer Science Department, University of Waterloo, 1999.
60. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, M.A.V. Nelson. "Towards an Object-Oriented Framework to Build Hypermap-Based Applications," University of Waterloo, Computer Science Research Report, CS-97-08.
61. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "A Component-Based Approach to Software Engineering," Monografias da Ciencia da Computacao, MCC-97-?, Departamento de Informatica, PUC-RJ.
62. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova. "A Views Relationship in Object-Oriented Design," University of Waterloo, Computer Science Research Report, CS-97-?,.
63. P.S.C. Alencar, D.D. Cowan, M. Fontoura, C.J.P. Lucena. "A Framework Development Approach Based on Viewpoints," University of Waterloo, Computer Science Research Report, CS-97-?.
64. P.S.C. Alencar, D.D. Cowan, M. Fontoura, C.J.P. Lucena. "Frameworks in Software Engineering: Methods and Tools," Monografias da Ciencia da Computacao, MCC-97-?, Departamento de Informatica, PUC-RJ,"
65. P.S.C. Alencar, D.D. Cowan, J. Dong, C.J.P. Lucena. "A Transformational Process-Based Formal Approach to Object-Oriented Design," University of Waterloo, Computer Science Research Report, CS-97-09.
66. P.S.C. Alencar, D.D. Cowan, C.J. Lucena, T. Nelson. "Viewpoints as an Evolutionary Approach to Software System Maintenance," University of Waterloo, Computer Science Research Report, CS-97-10.
67. D.M. German, D.D. Cowan. "SGML-Lite-An SGML-based Programming Environment for Literate Programming," University of Waterloo, Computer Science Research Report, CS-96-06.
68. P.S.C. Alencar, D.D. Cowan, L.H. de Figueiredo, K.J. Lichtner, C.J.P. Lucena. "Interactive Software Design Across the World-Wide Web," University of Waterloo, Computer Science Research Report, CS-96-08.
69. P. Bumbulis, P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Mechanizing the Validation of Component-Based Graphical User Interfaces," University of Waterloo, Computer Science Research Report, CS-96-16.
70. P.S.C. Alencar, D.D. Cowan, J. Dong, C.J.P. Lucena. "A Process Language Approach for Describing Design Pattern Applications," University of Waterloo, Computer Science Research Report, CS-96-37.

71. P.S.C. Alencar, D.D. Cowan, K.J. Lichtner, C.J.P. Lucena, L.C.M. Nova. "Foundations for Design Pattern Application," University of Waterloo, Computer Science Research Report, CS-95-53.
72. P.S.C. Alencar, D.D. Cowan, T. Kunz, C.J.P. Lucena. "A Formal Architectural Design Patterns-Based Approach to Software Understanding," University of Waterloo, Computer Science Research Report, CS-95-42.
73. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "A Formal Approach to Architectural Design Patterns," University of Waterloo, Computer Science Research Report, CS-95-38.
74. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Abstract Data Views as a Formal Approach to Subject-Oriented Programming," University of Waterloo Computer Science Research Report, CS-95-19.
75. P.S.C. Alencar, D.D. Cowan, D.M. German, K.J. Lichtner, C.J.P. Lucena, L.C.M. Nova. "A Formal Approach to Design Pattern Definition & Application," University of Waterloo Computer Science Research Report, CS-95-29.
76. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "Integrating Design Patterns and Subject-Oriented Programming within the ADV Framework," University of Waterloo Computer Science Research Report, CS-95-33.
77. P.S.C. Alencar, D.D. Cowan, D.M. German, K.J. Lichtner, C.J.P. Lucena, L.C.M. Nova. "A Formal Approach to Design Pattern Definition & Application," University of Waterloo Computer Science Research Report, CS-95-34.
78. P.S.C. Alencar, D.D. Cowan, K.J. Lichtner, C.J.P. Lucena, L.C.M. Nova. "Tool Support for Formal Design Patterns," University of Waterloo Computer Science Research Report, CS-95-36.
79. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena. "A Logical Theory of Interfaces and Objects," University of Waterloo Computer Science Research Report, CS-95-15.
80. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova. "Specification of Application and Interface Objects for Reuse," University of Waterloo Computer Science Research Report, CS-95-16.
81. P.S.C. Alencar, D.D. Cowan, C.J.P. Lucena, L.C.M. Nova. "Formal Specification of Reusable Interface Objects," University of Waterloo Computer Science Research Report, CS-94-44.
82. P.S.C. Alencar, L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena. "Towards a Logical Theory of ADVs," University of Waterloo Computer Science Report, CS-94-47.
83. P.S.C. Alencar, L.M.F. Carneiro-Coffin, D.D. Cowan, C.J.P. Lucena. "Towards a Formal Theory of Abstract Data Views," University of Waterloo Computer Science Research Report, CS-94-18, 50 pages.
84. D.D. Cowan, D.M. German, C.J.P. Lucena, A. von Staa. "Enhancing Code for Readability and Comprehension Using SGML," University of Waterloo Computer Science Research Report, CS-94-12, 14 pages.
85. A.B. Potengy, C.J.P. Lucena, D.D. Cowan, R. Ierusalmschy. "Program Design & Implementation with Abstract Data Views," University of Waterloo Computer Science Research Report, CS-93-16.
86. D.D. Cowan, C.J.P. Lucena. "Enhancing Software Design Reuse: Nesting in Object-Oriented Design," University of Waterloo Computer Science Research Report, CS-93-26.
87. D.D. Cowan, C.J.P. Lucena. "Abstract Data Views: A Module Interconnection Concept to Enhance Design for Reusability," University of Waterloo Computer Science Research Report, CS-93-52.
88. L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "A Rationale for Both Nesting and Inheritance in Object-Oriented Design," University of Waterloo Computer Science Research Report, CS-93-57.
89. D.D. Cowan, et al. "Distributed Abstract Data Views: Design and Implementation," University of Waterloo Computer Science Research Report, CS-93-61.
90. D.D. Cowan, C.J.P. Lucena, A.B. Potengy. "A Programming Approach for Parallel Rendering Applications," University of Waterloo Computer Science Research Report, CS-93-62.

-
91. L.M.F. Carneiro, D.D. Cowan, C.J.P. Lucena. "ADV Charts: a Visual Formalism for Describing Abstract Data Views," University of Waterloo Computer Science Research Report, CS-93-20, 22 pages.
 92. D.D. Cowan, C.J.P. Lucena, R.G. Veitch. "Towards CAAI: Computer Assisted Application Integration," University of Waterloo Computer Science Research Report, CS-93-17.
 93. M.H. Coffin, D.D. Cowan, C.J.P. Lucena, A.B. Potengy. "Distributed Abstract Data Views: Design and Implementation," University of Waterloo Computer Science Research Report, CS-93-16, 49 pages.
 94. L.M.F. Carneiro, M.H. Coffin, D.D. Cowan, C.J.P. Lucena. "User Interface High-Order Architectural Models," University of Waterloo Computer Science Research Report, CS-93-14, 15 pages.
 95. D.D. Cowan, C.J.P. Lucena, A. von Staa. "TALISMAN - A Process-Model Driven Software Engineering Environment," University of Waterloo Computer Science Research Report, CS-92-36, 25 pages.
 96. D.D. Cowan, T.M. Stepien. "Electronic Communication and Distance Education," University of Waterloo Computer Science Research Report, CS-92-22, 8 pages.
 97. D.D. Cowan, C.M. Durance, E.M. Giguere, G.M. Pianosi. "CIRL/PIWI: A Gui Toolkit Supporting Retargetability," University of Waterloo Computer Science Research Report, CS-92-28, 27 pages.
 98. D.D. Cowan, R. Ierusalimschy, T.M. Stepien. "Programming Environments for End-Users," University of Waterloo Computer Science Research Report, CS-92-09.
 99. D.D. Cowan, R. Ierusalimschy, C.J.P. Lucena, T.M. Stepien. "Abstract Data Views," University of Waterloo Computer Science Research Report, CS-92-07.
 100. D.D. Cowan, E.W. Mackie, G.M. Pianosi, G. de V. Smit. "Rita - An Editor and User Interface for Manipulating Structured Documents," University of Waterloo Computer Science Research Report, CS-91-20.
 101. D.D. Cowan, R. Ierusalimschy, T.M. Stepien. "Constructing Composite Interactive Documents from Interactive Components," University of Waterloo Computer Science Research Report, CS-91-49.
 102. D.D. Cowan, G. de V. Smit. "Manipulating Partial Documents in a Syntax- Directed Environment," University of Waterloo Computer Science Research Report, CS-90-02.
 103. R.H.B. Cabral, I.M. Campos, D.D. Cowan, C.J.P. Lucena. "Interfaces as Specifications in the MIDAS User Interface Development System," ACM Software Engineering Notes, April 1990. 15 pages.
 104. D.D. Cowan, E.W. Mackie, G.M. Pianosi. "Experiences with RITA - A Structured Document Editor," University of Waterloo Computer Science Research Report, CS-90-35.
 105. D.D. Cowan. "Computer Networks: Technology Boon/Moral and Legal Nightmare," Conference on Computers The Next Generation of Legal & Business Issues, The Canadian Institute, September 1988, pp. A1-A24.
 106. D.D. Cowan. "Future Directions in Data Communications for Post-Secondary Education," CIPS Review, May/June 1988, pp. 10-11.
 107. D.D. Cowan, J.W. Graham. "Commentary on 'Computing Technologies in the University -- the Implications of new Technologies'," Perspectives in Computing, Fall 1987. 2 pages.
 108. D.D. Cowan, J.W. Graham. "Understanding the Basics: An Introduction to Computer Technology," Proceedings of the Seminar on Computer Law for the Practitioner, November 1986. 10 pages.
 109. D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch, T.A. Wilkinson. "Using Minicomputers in Teaching in Secondary and Postsecondary Education," 9th Annual ASCUE Conference, Oklahoma City, Oklahoma, June 1976.
 110. D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch, T.A. Wilkinson. "Teaching Structured Programming in WATFOR-11 and WATBOL-11 on a PDP-11," 9th Annual ASCUE Conference, Oklahoma City, Oklahoma, June 1976.

-
- 111.D.D. Cowan, P.A. Janson, C.J. Jenny, R. Kummerle, H.R. Mueller, E.H. Rothaus. "Z-1 Establishment Information System Architecture," System Structure Technology, GTA Report, IBM Zurich Research Laboratory.
 - 112.D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch, T. Wilkinson. "Batch Compilers for Student Programs on the PDP-11," Proceedings of the Digital Equipment Computer Users Society, Atlanta, Georgia, May, 1978.
 - 113.D.D. Cowan, K.I. McPhee, J.W. Schueler, T. Wilkinson, J.W. Welch. "WATFOR-11: A Fortran Compiler for Debugging," 9th Canadian DECUS Symposium, January, 1976.
 - 114.D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch. "Batch Compilers for Student Programs on the PDP-11," Spring DECUS Symposium, 1976.
 - 115.D.D. Cowan, K.I. McPhee, J. Schueler, T. Wilkinson. "WATBOL-11: A COBOL Compiler for Debugging," 9th Canadian DECUS Symposium, January, 1976.
 - 116.D.D. Cowan, P.H. Dirksen, J.W. Graham, J.W. Welch. "Development of Educational Software using the DEC PDP-11," 9th Canadian DECUS Symposium, January, 1976.
 - 117.D.D. Cowan, K.I. McPhee, J. Schueler, J.W. Welch, T. Wilkinson. "WATFOR-11-RT," 1975 Fall, DECUS Symposium.
 - 118.D.D. Cowan, K.I. McPhee, J. Schueler, T. Wilkinson. "WATBOL-11," 1975 Fall, DECUS Symposium.
 - 119.D.D. Cowan, K.I. McPhee, J. Schueler, J.W. Welch, T. Wilkinson. "WATFOR-11 and WATFOR-11S," 1975 Spring, DECUS Symposium.
 - 120.D.D. Cowan, J. Schueler, J.W. Welch, T. Wilkinson. "WATFOR-11," The 8th Canadian DECUS Symposium.
 - 121.D.D. Cowan, J.W. Welch. "Debugging the WATFOR-11 Compiler," The 8th Canadian DECUS Symposium, January, 1975.
 - 122.D.D. Cowan. "Views on the IASA Programme in Computer Communications and a Review of Some Canadian Projects," Proceedings of the IASA Conference on Computer Communications, November, 1974.
 - 123.D.D. Cowan, L.O. James, R.G. Stanton. "Some Results on Tree Numbers," Proceedings of the Second Louisiana Conference on Combinatorics, Graph Theory and Computing, Baton Rouge, March 8-11, 1971, pp. 317-330.
 - 124.D.D. Cowan, P.C. Brillinger. "A Complete Package for Introducing Computer Science," at ACM SIGCSE Technical Symposium on Academic Education in Computer Science, November, 1970, pp. 118-126.
 - 125.D.D. Cowan, R.B. Roden. "A Large-Scale Programme in Computer Science," ACM SIGCSE Bulletin, November, 1970, pp. 18-23.
 - 126.D.D. Cowan, R.B. Roden. "Undergraduate Computer Science at the University of Waterloo-Curriculum, Systems Support and costs," at Session 70 of Canadian Information Processing Society Conference in Vancouver, British Columbia, June, 1970.
 - 127.D.D. Cowan, R.G. Stanton, R. Tilley. "The Cell Growth Problem for Filaments," Proceedings of the Louisiana Conference on Combinatorics, Graph Theory and Computing, March, 1970, pp. 310-339.
 - 128.D.D. Cowan, L.O. James, R.G. Stanton. "A Problem in Coding Theory," Proceedings of the Louisiana Conference on Combinatorics, Graph Theory and Computing, March, 1970, pp. 167-179.
 - 129.D.D. Cowan, L.O. James, R.G. Stanton. "Some Results on Path Numbers," Proceedings of the Louisiana Conference on Combinatorics, Graph Theory and Computing, March, 1970, pp. 112-135.
 - 130.D.D. Cowan. "Commercial Information Retrieval Systems," Computer and Program Organization - Fundamentals, University of Michigan, Engineering Summer Conference, June, 1967.

-
131. D.D. Cowan. "Sorting and Sort/Merge Systems," Computer and Program Organization Fundamentals, University of Michigan, Engineering Summer Conference, June, 1967.
 132. G. Berman, D.D. Cowan. "Sequential Optimization Methods for Determining the Zeros of Polynomials," presented at the Fifth National Conference of the Computer Society of Canada, May, 1966, pp. 360-366.
 133. D.D. Cowan. "The Numerical Solution of Unilateral Equations," Ph.D. Thesis, University of Waterloo, 1965.
 134. D.D. Cowan, V.K. Handa. "The Fulkerson Algorithm for Optimal Cost Curves," presented at the 1620 User's Group Meeting, Montreal, April, 1963.

INVENTION DISCLOSURES

1. D.D. Cowan, P.A. Janson, C.J. Jenny, E.H. Rothausser, A Multiprocessor Station Controller, IBM Invention Disclosure SZ8-78-0027.

BOOKS (17 Total)

1. Alencar, P.S.C., Cowan, D.D. Editors., Handbook of Research on Mobile Software Engineering: Design, Implementation and Emergent Applications (2 volumes), IGI Global, 2012.
2. D.D. Cowan, T. Wilkinson. "WATCOM Student Workbench WATFILE/Plus Tutorial," WATCOM Publications, 1988.
3. F.D. Boswell, D.D. Cowan, T.R. Grove. "WATCOM Pascal Users' Guide for the IBM Personal Computer with Waterloo microNet," WATCOM Publications, 1983.
4. D.D. Cowan, P.H. Dirksen, J.W. Welch. "WATCOM FORTRAN Users' Guide for the IBM Personal Computer with Waterloo microNet," WATCOM Publications, 1983.
5. D.D. Cowan, P.H. Dirksen, J.W. Welch. "WATCOM COBOL Users' Guide for the IBM Personal Computer with Waterloo microNet," WATCOM Publications, 1983.
6. F.D. Boswell, D.D. Cowan, T.R. Grove. "WATCOM Pascal Users' Guide IBM PC with DOS," WATCOM Publications, 1983.
7. D.D. Cowan, P.H. Dirksen, J.W. Welch. "WATCOM FORTRAN Users' Guide IBM PC with DOS," WATCOM Publications, 1983.
8. D.D. Cowan, P.H. Dirksen, J.W. Welch. "WATCOM COBOL Users' Guide IBM PC with DOS," WATCOM Publications, 1983.
9. D.D. Cowan. "Waterloo microNET Demonstration Manual," WATCOM Publications, 1983.
10. F.D. Boswell, D.D. Cowan, E.W. Mackie. "Lecture Notes on Software Portability," WATCOM Publications, 1983.
11. D.D. Cowan, M.J. Shaw. "Waterloo 6809 Assembler, Tutorial and Reference Manual," WATFAC 1982.
12. D.D. Cowan. "The Commodore SuperPET Computer, Machine and Assembly Language for the Motorola 6809," WATFAC 1981.
13. D.D. Cowan, J.W. Graham, T.A. Wilkinson. "Waterloo Basic for the Commodore PET: A Structured Programming Approach," WATFAC 1980.
14. D.D. Cowan, P.H. Dirksen, J.W. Graham. "An Introduction to COBOL and WATBOL: A Structured Programming Approach," WATFAC 1976.
15. R.H. Cooper, D.D. Cowan, P.H. Dirksen, J.W. Graham, R. Penton, S. Treadwell. "An Introduction to WATIAC and WATMAP," WATFAC 1974.
16. R.H. Cooper, D.D. Cowan, P.H. Dirksen, J.W. Graham. "File Processing with COBOL/WATBOL," WATFAC 1974.

17. D.D. Cowan. "Algorithms," in Contemporary Mathematics 4, Holt, Rinehart and Winston, Canada, 1967, pp. 430-460.

INDUSTRIAL REPORTS

1. D.D. Cowan, D.W. Mulholland, M.D. Cowan, M.J.W. Doran "The Southern Ontario Water Consortium IT Platform" (2012) 53 pages.
2. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "The X.500 Architecture - An Introduction," Bell Canada, (1989). 49 pages.
3. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "Application Processes in the OSI Model," Bell Canada, (1989). 32 pages.
4. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "Abstract Syntax Notation 1 (ASN.1)," Bell Canada, (1989). 25 pages.
5. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "The ISO Development Environment (ISODE) - An Introduction," Bell Canada, (1989). 49 pages.
6. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "The X.500 Directory Service - Implementation Issues," Bell Canada, (1989). 22 pages.
7. P.J. Bumbulis, D.D. Cowan, C.M. Durance, T.M. Stepien. "The X.500 Architecture - A Glossary," Bell Canada, (1989). 13 pages.

GOVERNMENT REPORTS

1. Fred McGarry, Tom Brenner, Donald D. Cowan, Brian Harvey, Dan D. P. McCarthy, Stephen D. Murphy. "Collaborative Geomatics for Participatory Democracy and Sustainable Development: Opportunities, Issues and Design Implications." TOWARD A BROADBAND RESEARCH AGENDA FOR ONTARIO - A Working Paper for the Ministry of Government Services.
2. Young G., D.D. Cowan et al. "Water for People Water for Life – The United Nations World Water Development Report," Berghen Books, July 2003. 500 pages
3. D.D. Cowan, J.W. Graham. "A Study of the Package Software Industry in Canada," a Report Submitted to the Department of Industry, Trade and Commerce August 1983. 68 pages.
4. N.D. Brewer, D.D. Cowan, C.C. Gotlieb, L.F. MacRae. "Utilization of Computer Networks - A Preliminary Study of the Methods of Using Computer Networks and of Applications which might be Available over a Computer Network," a report prepared by the CANUNET Advisory Committee, March, 1972. 66 pages.
5. D.D. Cowan, L. Waverman. "The Good Corporate Citizen in the Computer Industry - Policies to Maximize Canadian Welfare," Study for the Science Council of Canada, July 1971. 30 pages.
6. D.D. Cowan, L. Waverman. "Economics of Integration in Communications and Data Processing" - in "Policy Considerations with Respect to Computer Utilities," Tele Commission Study, Department of Communications, Government of Canada, April, 1971. 20 pages.

PROFESSIONAL MEMBERSHIPS

- Association of Professional Engineers of the Province of Ontario
- Association for Computing Machinery
- Institute of Electrical and Electronic Engineers
- Canadian Information Processing Society
- Founding Fellow of the Institute of Combinatorics and its Applications

CURRENT GRADUATE STUDENTS

PhD

1. Barrenechea E.
2. Ivens Portugal
3. Glauca Melo dos Santos
4. Cristina Tavares

MMath

POSTDOCTORAL FELLOWS SUPERVISED

1. Ulisses Telemaco 2019 -
2. Serge Savigny – 2017 - 2018
3. Karimi Vahid 2012 - 2015
4. Mendonca M. 2009
5. Oliveira T. 2008-2010
6. Gimenes I. - 2005
7. Nelson, M.A.V. - 2003
8. Nelson, T.P. - 2003
9. Oliveira T. – 2002/03
10. Nova, L.C.M. 2000
11. Yanmin S. 2000
12. Figueiredo L.H.F. 1994/95
13. Ierusalimchy R. 1992/93

THESES SUPERVISED

Ph.D

1. Serge Savigny
2. Karimi Vahid. “A Uniform Formal Approach to Business and Access Control Models, Policies and their Combinations” 2012
3. Mendonca Marcilio. “Efficient Compilation Techniques for Large Scale Feature Models 2009
4. M.A. V. Nelson. “A Problem-oriented approach to Description and Analysis of Geographic Requirements,” 2003.
5. T.P. Nelson. “Formal verification of Projection-based Software Systems,” 2003.
6. J. Dong. “Design Component Contracts: Modeling and Analysis of Pattern-based Composition” 2002
7. L.C.M. Nova. “A Formalization of an Extended Object Model Using Views,” 2000.
8. K. Lichtner. “A Framework for Machine-Assisted Software Architecture Validation,” 2000.
9. D.M. German. “Hadez, A Framework for the Specification and Verification of Hypermedia Applications,” 2000.
10. P.J. Bumbulis. “Combining Formal Techniques and Prototyping in User Interface Construction and Verification,” 1996.
11. L.M.F. Carneiro-Coffin, “Jasminum: Joining ADVs and State Machines in a Notation for User Interface Modelling,” PhD thesis, 1994.
12. R.G. deV Smit. “A Formatter-Independent Structured Document Preparation System,” 1987.

-
13. S.T. Vuong. "Formal Techniques for Protocol Specification and Validation - Toward an Integrated System," 1983.
 14. A. von Staa. "Data Transmission and Modularity Aspects of Programming Languages." 1975. (with W.M. Gentleman)
 15. H.J. Boom. "Optimization Analysis for Programming Languages that have Pointer Variables," 1974.
 16. R.J. Collens. "A Computer System for Balanced Incomplete Block Designs," 1973.
 17. T.C. Wilson. "A Graph-Theoretic Approach to Some Problems in Compiler Code Optimization," 1972.
 18. R.B. Maguire. "Methods for Producing Visual Displays of Linear Graphs," 1973
 19. C.R. Zarnke. "A Software Development Language," 1971.
 20. H.C. Williams. "A Generalization of the Lucas Functions," 1969 (with R.C. Mullin).

MPhil Thesis

1. A.M. Grenzbach. "Data Management - Techniques and Considerations," 1972.

MMath Theses

1. Tavares Cristina
2. Kumar Akshat
3. Srivastava Vishnu.
4. Kumar Vijay.
5. Peng Peng
6. Cristina Tavares
7. Kuen F. 2010
8. Wang Yi 2010
9. Chodos D. 2007
10. Malyk W. 2006
11. Kalili B. 2003
12. Lu Morgan 2005
13. Zhang P. 2004
14. D.B. Brown. "A Views-Based Design Framework for Web Applications," 2002.
15. M.F. Luo. "An Object-oriented Framework for Community Information Systems," 2001
16. C.J. Pal. "A Probabilistic Approach to Image Feature Extraction, Segmentation and Interpretation," 2000
17. T. Su. "A Distributed Data Consistency Framework for Internet-Based Applications," 1998
18. J. Dong. "A Transformational Process-based Approach to Object-oriented Design," 1997.
19. Y. Xu. "ADVs as Domain Transformers in the Design of an E-mail System," 1997.
20. J.Q. Huang. "A Tool to Assist in the Application of Design Patterns," 1997.
21. S.B. Wachsberg. "Efficient Information Access for Wireless Computers," 1996 (with J.W. Wong)
22. J.Y.E. Giguere. "A Model for Database Support in Rapid Application Development Environments," 1996.
23. R.W. Horman. "Towards a General Theoretical Foundation of Software Architecture," 1995.

-
24. K. Lichtner. "An Information Filtering Facility for Usenet News," 1995.
 25. C.M. Durance. "An Approach to Application Software Portability Across User Interface Toolkits," 1990.
 26. T.M. Stepien. "A Communication System for Local Area Networks," 1988.
 27. P.J. Bumbulis. "A Practical Non-Correcting Syntax Error Recovery Algorithm," 1987.
 28. M. Murphy. "Specification, Verification and Semi-Automatic Implementation of Protocols Using Petri Nets," 1984.
 29. P.A. Lim. "Structured Programming in Financial Accounting Systems," 1981.
 30. Wm. R. White. "A Study of Some Aspects of Computer-Communication Protocols," 1976.
 31. R. Tilley. "Algorithms for the Growth of Filaments," 1969.
 32. L.O. James. "Error-Correcting Codes," 1969.
 33. C.J.P. Lucena. "A Study on Numerical Methods for Interpolation and Function Approximation," 1969.
 34. G.M. Calnek. "A Testing and Grading System for Student Software Programs, 1970
 35. R.S.K. Shirley. "A System for Teaching Machine and Assembly Language Programming Using a Graphic Display," 1967.

M.Math ESSAYS SUPERVISED

1. Kaastra M. 2003
2. Wang Y. 2003
3. C. H. Tsou 2001
4. W. Li 1999
5. T.M. Francis 1997 – "A Viewpoint on Legacy Systems"
6. D. Smith 1994
7. L. Rao 1993
8. D.G.K. Fairman 1993
9. D.P. Mulders 1989 – "Network Security: A Review of Measures and Mechanisms"
10. S.R. Taulbee 1989 – "Computer Contagions and their Impact on the Business Environment"
11. J. Alvarez 1985 – "Style and Portability in COBOL – 8x"
12. Y.S. Leo 1984 – "Portability Issues Associated with Fortran Programming"
13. P. Gallop 1984 – "The Invariant Technique for the Verification of Petri Net Specifications"
14. Yang Hong-zhi 1982 (with K.O. Geddes)
15. F. Newbery 1980 – "The Computer Criminal and How to Avoid Him"
16. P.M. Rattee 1979 (with K.D. Fryer)
17. M.M.N. Nicholas 1979 (with K.D. Fryer)
18. D.M. Deschambault 1979 – "Calculators for a Small Planet" (with K.D. Fryer)
19. F. C-K Li 1977 – "Problem Set for Educational Database System"
20. L.E. Snikkar 1977 (with K.D. Fryer and P.J. Ponzo)
21. S. Singh 1977 (with K.D. Fryer)
22. A.M. Moore 1977

-
23. J.H. Lau 1977
 24. A. Gall 1977
 25. G.W. Crandlemire 1976
 26. D.J. Laurenson 1976
 27. K.A. Kamel 1976
 28. N.D. Diamond 1976
 29. E.A. Diamond 1976
 30. M.W. Davidson 1976 (with K.D. Fryer)
 31. K-L P. Chan 1976
 32. J.K. Peacock 1975
 33. N.J. Viire 1975
 34. A.S. Swanston 1975 (with K.D. Fryer)
 35. C. Raheb 1975 (with P.J. Ponzio)
 36. L.C. Musselman 1975 (with K.D. Fryer)
 37. E.F. Lyons 1975
 38. R.W. Link 1975
 39. B. Lapcevic 1975 (with K.D. Fryer)
 40. T.J. Griffiths 1975 (with K.D. Fryer)
 41. I. Mijares 1974 (with R.W. Peebles)
 42. J. Budz 1974
 43. G. Bouwers 1974
 44. A.C. Zoltan de Torres 1972
 45. T.T. Luu 1972
 46. J.C. Gordon 1972
 47. X.N. Dam 1972 (with D.E. Morgan)
 48. J.J. Bedford 1972
 49. E.W.A.B. Witkowski, "The Verification and Synthesis of Protocols," 1971.
 50. J. Tom 1971
 51. K.R. Price 1971
 52. C.L. Lucchesi 1971
 53. D.P. Jones 1971
 54. M.S.S. Elwakkad 1971
 55. R.S.C. Braga 1971 (with M.A. Malcolm)
 56. D.D. Lane 1970
 57. B.J. Murphy 1969
 58. R.B. Maguire 1969
 59. P.A. Didur 1969

60. C.R. Zarnke 1967

61. A.M. Grenzebach 1967

CURRENT GRANTS & GRANTS HELD

2020 - iEnvironment: Advanced Data and Application Reuse and Adaptation through a Software Platform for Integrated Environmental Monitoring and Modeling of Surface Water CANARIE \$249,158

2018 - Toward a clinic-in-a-box: an inexpensive integrated toolkit for assessing balance, mobility and cognition in the frail and elderly Spark grant from Centre for Aging and Brain Health Innovation \$50,000.

2018 - iEnvironment++: Extending a Software Platform for Integrated Environmental Monitoring and Modelling of Surface Water CANARIE \$224,931.

2018 - Linking stream network process models to robust data management systems for the purpose of land-use decision support Global Water Futures \$260,000

2017 - Toolkit for Assessing Human Balance and Mobility Canadian, Spark grant from Centre for Aging & Brain Health Innovation \$50,000

2017 - iEnvironment: A Software Platform for Integrated Environmental Monitoring and Modelling of Surface Water – CANARIE \$439,723

2015 - Community Trends Platform –Ontario Local Poverty Reduction Fund \$299,976

2015 - Building a Web-based Information Platform for Dynamic Online Quality of Life Indicators United Way Perth Huron \$21,000

New technologies to optimize assessment of mobility, activity and health in the frail elderly TVN (\$60,000) (2016)

An Open-Data Cloud Platform for Watershed Modeling and Decision Support Adding Value to Watershed Data from Storage through Analysis to Visualization – Communitech (FedDEv) \$109,500 (2014)

An Open-Data Cloud Platform for Watershed Modeling and Decision Support Adding Value to Watershed Data from Storage through Analysis to Visualization – Greenland Internationals Consulting \$20,000. (2014)

Dreamcatcher: A Web-based/Mobile Information System for Aboriginal Land Management, Consultation, and Preservation of History, Culture and Traditional Ecological Knowledge, SSHRC Partnership Development Grant \$198,822 with D. McCarthy University of Waterloo. 2013 -2016.

Next Generation Web Approaches and Tools, Ontario Research Fund Research Excellence Program - \$2,096,538 with Paulo Alencar University of Waterloo, Carlos Lucena, Pontifical Catholic University of Rio de Janeiro, 2010-2014.

Next Generation Web Approaches and Tools, - \$300,000, JOMICA Investments with Paulo Alencar University of Waterloo, Carlos Lucena, Pontifical Catholic University of Rio de Janeiro, 2010-2014.

Next Generation Web Approaches and Tools, - \$2,687,000, Centre for Community Mapping with Paulo Alencar University of Waterloo, Carlos Lucena, Pontifical Catholic University of Rio de Janeiro, 2010-2014.

Next Generation Web Approaches and Tools, - \$225,000, iAnywhere with Paulo Alencar University of Waterloo, Carlos Lucena, Pontifical Catholic University of Rio de Janeiro, 2010-2014.

2013-2014. SSHRC (\$42,330) Resource Development in the Kamilaroi Region of New South Wales, Australia: The Potential Use of the Collaborative Geomatics Informatics Tool (Principal Investigator [PI]: L.J.S. Tsuji)

2011-2014. SSHRC (\$258,620) Land Use Planning and Resource Development at the Community Level in the Mushkegowuk Territory: the Use of Traditional Environmental Knowledge (TEK) and Western Science as Complementary Forms of Knowledge. (PI: L.J.S. Tsuji)

2009-2013. SSHRC (\$242,435) Traditional Environmental Knowledge (TEK) and Western Science as Complementary Forms of Knowledge: Explaining and Predicting Sea-Level Change due to Glacial Isostatic Adjustment (GIA) and Global Warming in the Hudson Bay Region, Canada, and the Use of Collaborative Geomatics to Monitor Sea-Level Change in the Western James Bay Region, Canada (PI: L.J.S. Tsuji)

2011 – 2012 Health Canada (\$300,552) Crush the Crave (P.I. B. Baskerville)

2011 -2012 Ontario Ministry of Tourism (\$48,125) Built Heritage Mobile Application Project (P.I. Robert Shipley)

2011-2012 Ontario Ministry of Tourism (\$50,000) Built Heritage Mobile Application Project (P.I. Robert Shipley)

2011-2012 Heritage Canada (\$200,000) Built Heritage Mobile Application Project (P.I. Robert Shipley)

2011-2012. SSHRC (\$77,009) Youth outreach in the Mushkegowuk Territory of sub-arctic Ontario, Canada: Collaborative geomatics. (PI: L.J.S. Tsuji)

2010-2011. SSHRC (\$87,000) Collaborative geomatics in remote First Nations communities: tracking environmental change and fostering continuous learning in the Mushkegowuk Territory (PI: Daniel McCarthy; Co-Investigator [CI]: L.J.S. Tsuji)

2010-2011. Ontario Ministry of Culture (\$50,000) Dreamcatcher informatics/Mushkegowuk cultural map service. (PI: Daniel McCarthy; CI: L.J.S. Tsuji)

2009-2010. SHRC (\$87,475) World biosphere regions and collaborative geomatics: networking tools for fostering sustainability, local economic development and continuous learning in the Mushkegowuk Territory (PI: Daniel McCarthy; CI: L.J.S. Tsuji)

An Architecture, Meta-Model and Easy-to-use Toolkit for the Creation of Web-based Geomatics Information - \$448,500, NSERC CRD with Dan Berry, Paulo Alencar, Dominic Covey, Steve Murphy Dan McCarthy, all of the University of Waterloo, and Carlos Lucena, Pontifical Catholic University of Rio de Janeiro 2010-2012

I Teach Heart – Heart and Stoke Foundation, \$50,000, with Femida Gwadry-Sridhar, Lawson Health Sciences Centre, 2008-2010.

World biosphere regions and collaborative geomatics: networking tools for fostering sustainability, local economic development and continuous learning in the Mushkegowuk Territory – SSHRC, \$87,075, 2009 with Daniel McCarthy (PI).

TEK and Western Science as Complementary Forms of Knowledge: Explaining and Predicting Sea-Level Change due to Glacial Isostatic Adjustment (GIA) and Global Warming in the Hudson Bay

Region, Canada and the Use of Collaborative Geomatics – SSHRC, \$242,000, 2009 with L.S. Tsuji (PI)

Caledon Community Map - Caledon Countryside Alliance, \$13,000, June/October 2009

Mennonite Heritage Project - Canadian Heritage, Canadian Culture Online Initiative, \$332,783, June 2008 – September 2009

Monitoring the Moraine - Citizen's Environment Watch, \$20,000.00, October 2008 - September 2009

News Atlas - Family Service Toronto, \$15,000.00, September 2009 – September 2011

STS SLA - Federation of Ontario Cottagers Associations, \$14,286, September 2008 - August 2009

Mennonite Heritage Project - Kitchener-Waterloo Community Foundation, \$10,000.00, July 2007- June 2008

Ontario Stream Information Systems - Lake Simcoe Watershed, \$15,000.00, April 2009 – March 2009

Mapping and Planning System (MAPS) - Mississaugas of the New Credit First Nation, \$40,000, April –July 2009

Ontario Drinking Water Stewardship Tracking System- Ontario Ministry of the Environment, \$92,500, January – August 2009

Invasives Tracking System - Ontario Federation of Anglers & Hunters, \$120,000, April 2009- February 2010

Playscape - Opportunities Waterloo Region, \$7,175.00, July - August 2009.

Helper Project - Ray of Hope, \$5,160.00 July – December 2009

IW:Science & KM:Land Project - United Nations University, \$100,000.00 September 2009 – November 2010

Extension to the VAC System - Volunteer Action Centre K-W (VAC), \$16,240.00, April 2009 – October 2010

Waterloo Region Arts Portal - Region of Waterloo, \$10,290.00, March – June 2009

Phase IV – Performance Indicators Monitoring System (PIMS) Ontario Tobacco Research Unit \$100,000 2007

Phase III- Budget Support for Performance Indicators Monitoring System (PIMS) Ontario Tobacco Research Unit \$75,000 2007

Phase II- Performance Indicators Monitoring System (PIMS) Ontario Tobacco Research Unit \$90,850 2007

Infrastructure Support Trillium Foundation 2006 \$96,000

Monitoring the Moraine – Citizens Environment Watch 2006 \$40,000

Moraine Restoration and Stewardship System project Ontario Ministry of Natural Resources 2006 – 2007 \$163,220

Performance Indicators Monitoring System (PIMS) Ontario Tobacco Research Unit
\$46,254 2006

Improving a Diabetes Management Program by Integrating Technology Health Technology Exchange
\$119,000 2006-2007

Improving a Diabetes Management Program by Integrating Technology Micohealth \$11,500 2006-2007

Natural Language Generation Tools and Methodologies for Personalized Telehealth Systems NSERC
CRD \$40,000 2006 – PI Chrysanne DiMarco, co-PIs Bray, Covvey, Cowan, DiCiccio, Hovy, Lipa

Natural Language Generation Tools and Methodologies for Personalized Telehealth Systems Bell
University Labs \$40,000 2006 – PI Chrysanne DiMarco, co-PIs Bray, Covvey, Cowan, DiCiccio,
Hovy, Lipa

Natural Language Generation Tools and Methodologies for Tailored Documents NSERC CRD
\$100,000 2006 – with Chrysanne Dimarco (PI)

Natural Language Generation Systems for Creation of Tailored Patient Bell University Labs \$100,000
2005 – with Chrysanne Dimarco (PI)

NSERC/Strategic – “Evolutionary Concern-Based Extensions: A Flexible and Modular Approach for
the Design, Composition and Customization of High-Integrity Component-Oriented Web Application
Families” \$476,007 2005-2008 – with Paulo Alencar (PI)

Volunteer Action Centre - Volunteer Action Centre Project \$22,050 2005

Victorian Order of Nurses - CareNet: Caregiver Resource Network \$25,000 2005-2006 with Covvey
(PI)

HRSDC – Serving New Immigrants Using a Next Generation Community Learning Network
Project NOW (Newcomers Online Waterloo) - \$399,987 2005 – 2008 with C.Matyas (WPL)

MOHLTC - Rapid Visualization Environment (RaVE) for Health Data “\$25,000 2005

HKPR Regional Hospital Group A Web-Based Tool for Defining Bandwidth Requirements of PACS
Networks \$25,000 2005

NSERC/CRD – “Next-Generation Declarative Enterprise Frameworks based on Advanced Separation
of Concerns” \$362,324 2004-2006

CITO/Precarn – “Point of View Intelligent Middleware,” \$150,000, 2004.

Rogers Cable Inc – “An Easy-to-use Web-based Multimedia Platform Incorporating State-of-the-Art
Multimedia Data Compression” \$250,000 2003-2005

IBM Eclipse Innovation Grant – “Development and Dissemination of a Design Methodology for
Eclipse Plug-ins” \$24,841 2003

IBM – “Hypermedia Content Management,” \$98,000 2003-2005

Bell University Labs – “Dynamic Self Organizing Process-based Enterprise Identity Management:
Architecture and Frameworks,” \$333,200 2003-2005

CITO – “Advanced Models and Implementations for Active Approaches to Hypermedia Documentation Use and Maintenance,” \$216,000 2003-2004

NSERC Strategic Grant – “Prophylactic Program Design: An Approach to Next Generation Legacy Web-based Software Applications,” \$474,000 2001-2004

Strategic Skills Initiative, MEOI, Province of Ontario – “EP3 The Education Program for Photonics Professionals,” \$317,660 2002-2004

HRDC – “WINning Community Learning Spaces,” \$299,963 2001 – 2004

HRDC – “Employment Support Network,” \$125,210, 2001

IBM Canada – “Issues and Models in Documentation,” \$150,000, 1998-2001

CSER Grant – “Issues and Models in Documentation,” \$294,000, 1999- 2002

NSERC Strategic Grant – “Component-based Software Systems - A Development Approach Using Viewpoints,” \$445,000, 1998- 2001.

CITO “Systems from Off-the-shelf Software Components – Issues in Design, Implementation and Standardization,” \$53,000 1999

Telecommunications Access Partnership Grant – “Waterloo Information Network,” \$50,000 1998

Map Connections – “Waterloo Community Network,” \$10,000 1998

Bell Emergis – “Waterloo Community Network,” \$50,000, 1998

IBM Canada – “Investigation of Computer Interface Builders,” \$25,000, 1997.

ITRC Grant for “Pattern Languages,” \$150,000, 1996-97.

IBM Canada – “Investigate design patterns,” \$25,000, 1996.

Creation of Software Engineering Laboratory \$76,119, 1995-96.

NSERC IOR Grant “Methods and Tools to Support the Design of Highly Interactive Software Systems” \$315,000, 1995-97.

Investigator in Environment Canada Grant for Environmental Information Systems \$250,000, 1994.

SHRC Grant for Retraining of Software Professionals \$660,000, 1994-98.

ITRC Grant for Script Languages, User Interfaces and Reusability \$154,000, 1994-95.

Investigator in ITRC Grant for Flexible Text Support in A Software Development Workbench \$370,000, 1993-94.

Investigator in Tri-Council Research Grant on Environmental Issues \$2,100,000, 1993-95.

WATCOM International - Script languages and databases \$100,000, 1993-95.

IBM Canada - Investigate tagged documents for software engineering \$25,000, 1993-95.

NSERC - Infrastructure Support for the Institute for Computer Research \$1,408,000, 1992-95.

NSERC - Infrastructure Support for the Institute for Computer Research \$1,600,000, 1989-92.

Bell Canada - Investigate implementation of X.500 prototypes Research Grant \$112,000, 1988.

NEC Canada - Investigate file servers in LANs for portable computers Equipment \$100,000, 1988-89.

WATCOM Group - Investigate use of Educational Software in distance education Software \$50,000, 1987-89.

Toshiba Canada - Investigate portable computers and networks in distance education Equipment \$252,500, Research grant \$60,000, 1987-89.

WATCOM Group - Investigate use of Educational Software in portable computing environment Software \$125,000, 1985-88.

IBM Canada - Investigate LANs for portable computers Equipment \$150,000, 1986-88.

Hewlett Packard Canada - Investigate LANs for portable computers Equipment \$2,100,000, 1985-88.

Bell Canada - Investigate connection of LANs to public data network Equipment \$120,000 and Research Grant \$50,000, 1986.

Grant for Project Aries - The University of Waterloo Portable Computing Project - Phase II, URIF Grant Ministry of Colleges and Universities (Ontario) (\$254,667-1987/88).

Grant for Project Aries - The University of Waterloo Portable Computing Project - Phase I, URIF Grant Ministry of Colleges and Universities (Ontario) (\$1,160,000-1986/87).

Grant for Software Studies with J.W. Graham Dept of Industry, Trade and Commerce (\$27,500 - 1982).

CIDA Contract for CIDA/COMBRA II Project (\$325,600 - September 1974 to August 1981).

Principal Investigator on Traffic Studies for CANUNET - Department of Communications (\$20,000.00).

Department of Communications: "Simulation Study of Uses of Computer Networks," with W.M.Gentleman 1971-72 \$34,000.00 1972-73 \$38,000.

IBM Fellowship Grant 1971-72 \$15,000.00

IBM Fellowship Grant 1970-71 \$15,000.00

IBM Fellowship Grant 1969-70 \$15,000.00

IBM Fellowship Grant 1968-69 \$13,000.00

DRB Grant 1973-74 \$3,500.00

DRB Grant 1972-73 \$4,000.00

DRB Grant 1971-72 \$6,000.00

DRB Grant 1970-71 \$8,000.00

DRB Grant	1969-70	\$8,500.00
DRB Grant	1968-69	\$7,600.00
NRC Participant in CNPq-Brazil Exchange - 1970		
NRC Participant in CNPq-Brazil Exchange - 1969		
NSERC Grant	1988-90	\$12,000.00/year
NSERC Grant	1987	\$12,000.00/year
NSERC Grant	1986	\$11,579.00/year
NSERC Grant	1985	\$20,677.00/year
NSERC Grant	1982-84	\$24,770.00/year
NRC Grant	1979-82	\$18,000.00/year
NRC Grant	1976-79	\$20,000.00
NRC Grant	1973-76	\$24,000.00/year
NRC Grant	1972-73	\$17,000.00
NRC Grant	1971-72	\$15,400.00
NRC Grant	1970-71	\$10,000.00
NRC Grant	1969-70	\$9,000.00
NRC Grant	1968-69	\$10,780.00
NRC Grant	1967-68	\$4,500.00
NRC Grant	1966-67	\$2,500.00
NRC Grant	1965-66	\$3,000.00

GRANT APPLICATIONS

BOARD MEMBERSHIPS

2nd Vice-President, Canadian Information Processing Society.

Member, Board of Directors Educational Computing Organization of Ontario (ECOO) 1983 to 1985

Manager, Brazil-CIDA Agreement (1974-81)

Chairman, Subcommittee on Utilization of Computer Networks, CANUNET Advisory Committee

National Director, Canadian Information Processing Society

Secretary, Canadian Information Processing Society

Vice-President, Grand Valley Chapter, Canadian Information Processing Society
President, Grand Valley Chapter, Canadian Information Processing Society

EDITORIAL BOARD MEMBERSHIPS

Utilitas Mathematicae

Aequationes Mathematicae

Caribbean Journal of Mathematics

South African Computer Journal

Scientia Journal

CONSULTING ACTIVITIES

Consultant to Science Council of Canada on Computing & Economics

Consultant for CABLEDATA; an ARPA Contractor

Consultant for Organization of American States

Consultant, Department of Communications, Government of Canada

Consultant, IBM Corporation

Consultant to CIDA on Brazil-Canada Agreement

Consultant, IBM (Venezuela)

Consultant, University of Calabria, Cosenza Italy

Consultant, IBM (Brazil)

Consultant, Government of Canada National Revenue

Consultant, Gulf Oil (Canada)

Consultant, Saskatchewan Telecommunications

Consultant, Public Service Commission Government of Canada

Consultant, Department of Supply and Services Government of Canada

Consultant, IBM (General Systems Division)

Consultant on Computer Networks - Grand Valley State College (1984)

Consultant on Computer Selection - Hamilton Board of Education (1984)

Consultant to Apple Canada as expert witness in the Apple Trial (1986)

Consultant to the Kuwait Foundation for the Advancement of Science,
Member of the Selection Panel for the Kuwait Prize in Basic Science (Computer Science) (1986).

Consultant to Fasken and Calvin on various aspects of litigation in the area of computer technology (1987).

Consultant to Apple Canada as expert witness in the Apple Trial (1986)

IBM Consulting Scholar (1988 – 1996)

Consultant to Fasken and Calvin on various aspects of litigation in the area of computer technology (1987).

Advisor to the Victorian Order of Nurses (VON) on information and communications technology planning (2005 -)

Consultant to the Ontario Medical Association on various aspects of the OntarioMD portal strategy (2005).

Consultant to the Smart Systems for Health Agency on various aspects of integration of the OntarioMD portal and portal team into SSHA. (2006)

COMMITTEE MEMBERSHIPS

ACM Curriculum Committee on Computer Science

Microtechnology Consultative Committee, Ministry of Education Government of Ontario (1982).

Special Advisory Committee on the CAD/CAM Centre, Ministry of Industry and Trade, Government of Ontario (1982).

Ministry of Education OAC Curriculum Committee on Computer Technology (1984).

Ministry of Education OAC Curriculum Committee on Computer Science (1985 - 86).

Programme Committee, Grand Valley Chapter, Canadian Information Processing Society

National Research Council of Canada, Grants Committee on Computer Science (1971-73).

Department of Communications Advisory Committee on CANUNET, (Canadian Universities Computer Network).

Computer Science Curriculum Committee, Ontario Department of Education.

ACM Awards committee from 2001 to 2003 and during that time chaired the committee judging the participants at the Intel International Science and Engineering Fair (ISEF).

JOURNAL REFEREEING ACTIVITIES

Computer Networks and ISDN Systems

Software Practice and Experience

Electronic Publishing, Organization, Dissemination and Design

Communications of the ACM

IEEE Software

Software Engineering for Large-scale Multi-Agent Systems 2003 (SELMAS03)

International Journal of Technology, Knowledge and Society

IEE Software

Scientia

Elsevier Information Science

Elsevier Computers in Biology and Medicine