

# Nicholas Ramsey Chrisman

## Education

- 1979-82 University of Bristol (England), **Ph.D.** in geography  
Thesis titled: *Methods of spatial analysis based on error in categorical maps*
- 1968-72 University of Massachusetts–Amherst, **B.A.**, *magna cum laude*, geography.
- 1970 Université de Strasbourg (France) auditeur libre

## Employment

- 2014- Editor, *Cartography and Geographic Information Science* (volunteer position)
- 2013-14 Professor, RMIT University; Head of Discipline, Geospatial Sciences
- 2013- Professeur associé, Université Laval, Sciences géomatiques
- 2005-12 Professeur titulaire, Université Laval, Sciences géomatiques  
Directeur scientifique, Réseau GEOIDE Network
- 1987-2004 Assistant to Full Professor, University of Washington, Geography
- 1982-87 Assistant Professor, University of Wisconsin–Madison  
Department of Landscape Architecture & Institute for Environmental Studies
- 1972-82 Programmer/Analyst, Laboratory for Computer Graphics and Spatial  
Analysis, Graduate School of Design, Harvard University

## Research Interests

Geographic Information Systems (GIS): 45 year experience; output: 2 books; over 100 scientific articles (over 65 reviewed outlets); h-index: 35 (35 works with over 35 citations)

<http://scholar.google.com.au/citations?user=CvNZdXEAAA&hl=en>

Science and Technology Studies (STS): 12 year engagement

*See Bibliography for titles and places of publication.*

## Science Management

GEOIDE Network (2005-12): Direction of interdisciplinary teams at 30 Canadian Universities (134 researchers, 247 students, 25M\$ from NCE & 9M\$ from others)

## Personal Details

Born 18 September, 1950 in Northampton, Massachusetts USA; US Citizen  
Fluent in French, Functional basic Spanish.

## Research Grants and Contracts

### At RMIT University

2014-17 *Disaster landscape attribution: thermal anomaly surveillance and hazard mapping, data scaling and validation*, Bushfire and Natural Hazards CRC, Chief Investigator with Karen Rienke and Simon Jones (PI), 847,000\$

### At Université Laval

2012-13 *GEOIDE Network Management Funds*, Networks of Centres of Excellence, 408,000\$

2009-12 *GEOIDE Network Phase IV*, Networks of Centres of Excellence, Scientific Director, 3,500,000\$CAD/ year; 1.3M\$/year non-NCE cash contributions

2008-12 *Situating geographic information analysis: Retrospective case studies*, Social Sciences and Humanities Research Council of Canada, PI, 25,000\$CAD /year

2005-09 *GEOIDE Network Phase III*, Networks of Centres of Excellence, Scientific Director, 3,500,000\$CAD/ year; 6,120,000\$ non-NCE funds (total)

### At University of Washington

2000 Invited for 3 months as Chercheur associé, Unité Mixte de Recherche ESPACE, Centre Nationale de la Recherche Scientifique, Montpellier France.

1998-01 *Social Construction of GIS*, National Science Foundation, PI, \$84,000

1998-00 *Clearinghouse for GIS Data*, Olympic Natural Resource Center, US Forest Service, US Geological Survey, Co-PI (D. Peterson PI), \$43,000 + \$61,000

1995-96 *Social Practice of GIS: LLRW Siting*, Royalty Research Fund, \$12,000

1994-95 *Facilitating Collaborative Learning and Critical Thinking in a GIS Laboratory for Undergraduate Education*, National Science Foundation Instrumentation Grant, Timothy Nyerges, Principal Investigator, \$25,000

1994 *Issues in Data Quality*, Institut Géographique Nationale (France), \$3,000

1993-94 *Accuracy Study for California Timberland Task Force*, subcontract with University of California-Santa Barbara, Michael Goodchild PI, \$12,000

1988-91 *Modelling Error in Overlaid Categorical Maps*, National Science Foundation, Principal Investigator. \$80,000

### At University of Wisconsin

1986-87 *Evaluate Alternatives for Conservation Planning*, USDA Hatch \$40,000

1985-86 *National Charting Accuracy Standards*, Charting and Geodetic Services, National Ocean Service, NOAA [sole principal investigator] \$68,000

1983-86 *Dane County Land Records Project*, cooperative project with multiple partners at all levels of government [with four others] \$100,000

### At Harvard Laboratory for Computer Graphics

1979-81 *Countervailing Population Redistribution: Factors Influencing Inner-City Revitalization*, National Science Foundation, Geography Program [Brian Berry PI] \$100,000

1974-77 *Topological Information Systems for Urban and Environmental Research*, National Science Foundation, Computer Science Div., [named coprincipal] \$230,000

## Professional Service

- 2010-14 President, Global Spatial Network
- 2011-13 member, Panel on Developing Science, Technology and Innovation Indicators for the Future, Committee on National Statistics, National Research Council (USA).
- 2011 member, Committee 09, Social Science and Humanities Research Council (Canada)
- 2009-11 member (Board of Directors), Centre of Excellence for Integrated Resource Management (now Tecterra), Alberta (NCE-funded CECR)
- 2007-12 member, GeoBase Steering Committee, Natural Resources Canada
- 2007-10 member Working Group on National Mapping Strategy, Canada
- 2006-11 member, Science and Technology Committee, GEO Consortium, Geneva
- 2006 External review, Université du Québec à Trois-Rivières, Masters in envir. sciences.
- 2004 Program Committee, Society of the Social Studies of Science, Paris.
- 2000-10 Program Review, GIScience 2000; 2004; 2006; 2008; 2010.
- 1999 Program Committee, GISOC, Minneapolis.
- 1998 Chair, Technical Programme Committee, Spatial Data Handling 98, Vancouver
- 1997-99 member, Mapping Sciences Committee, National Research Council
- 1997 Director, AUTO-CARTO 13
- 1995-7 Elected Chair, GIS Specialty Group, Association of American Geographers
- 1994 Local arrangements, *GIS and Society Workshop*. NCGIA.
- 1993 Peer Review Panel, National Research Council, Global Change Data & Information
- 1993-99 Committee on Standards, Association of American Geographers
- 1993- Comité de Rédaction, **Revue Internationale de Géomatique**, Paris.
- 1993-99 Program Review, Conference on Spatial Information Theory 93; 95; 97; 99.
- 1992-94 Director, American Cartographic Association
- 1991-93 Technical Program Review, AUTO-CARTO 10; 11 (1993); 12 (1995)
- 1988-90 Editorial Board, **The American Cartographer**, ACSM
- 1987-88 Director, Specialty Group on GIS, Association of American Geographers
- 1987 Program Advisory Committee, International GIS Symposium, (AAG)
- 1986-87 Director, AUTO-CARTO 8 (awarded Presidential Citation by ASPRS)
- 1985-86 Subcommittee on Standards, Wisconsin Land Records Committee
- 1982-87 Chair, Working Group on Data Set Quality, National Committee for Digital Cartographic Data Standards (ACSM)
- 1983-85 Technical Program Advisor, AUTO-CARTO 6 & 7
- continual Review of research proposals for research councils in France, USA, Canada, etc.

## University Service

### Université Laval

- 2008-14 membre, Commission de la recherche, Université Laval
- 2008-10 directeur (par intérim) Centre de recherche en géomatique

### University of Washington

- 2001 Program Review, Department of Civil and Environmental Engineering (chair)
- 1999-00 Search Committee for Chair of Earth and Space Sciences (chair)
- 1998-00 Steering Committee, Interdisciplinary Group for PhD in Urban Design and Planning
- 1996-01 Faculty Senate
- 1994-04 State Environmental Policy Committee (reviews SEPA documents)
- 1993-99 President, UW Consortium for Geographic Information and Analysis

### University of Wisconsin–Madison

- 1986-87 Computing Center Advisory Committee
- 1986 *ad hoc* Committee on the Mission of the Academic Computing Center
- 1982-87 Information Technology Committee, College of Agricultural & Life Sciences

## Departmental Service

### RMIT University

- 2013- member, Executive, School of Mathematical and Geospatial Sciences

### Université Laval

- 2010-12 Comité de programme deuxième et troisième cycles, département des sciences géomatiques
- 2005 Search Committee for Junior Chair of Canada position

### University of Washington

- 1999-00 Strategic Planning Committee
- 1998-99 Outreach and Fund-raising Committee
- 1988-03 Graduate Admissions Committee
- 1997-98 Curriculum Committee
- 1994-95 Executive Committee
- 1991-92 Graduate Program Coordinator (chairs Admissions Committee; advises students)

## Community Service

- 1991-92 Land Use Transition Advisory Committee, City of Bainbridge Island
- 1991 Environmentally Sensitive Advisory Committee, City of Bainbridge Island
- 1989-95 South Bainbridge Community Association: environmental advocacy

## Technical Roles

- 1997-98 49th Parallel International Boundary, Public Defender, Whatcom County.
- 1991-94 Accuracy Assessment Task Force, California Forestry Dept. (UC Santa Barbara)
- 1991-95 Coastal Wetland Change Program, US National Marine Fisheries Service
- 1982-87 substantial interactions with local governments in Wisconsin
- 1971-72 Consultant to Bureau of Equal Educational Opportunities, Commonwealth of Massachusetts

## Editorial Responsibilities

- 2014- Editor, *Cartography and Geographic Information Science*, journal of CAGISociety
  - 2012 co-editor, Proceedings, Global Geospatial Conference 2012. *The Added Value of Scientific Networking: Perspectives from GEOIDE Network Members 1998-2012*, editors: N. Chrisman and M. Wachowicz, ISBN 978-1-927371-68-8.
  - 2009 Guest Editor, special issue of *Geomatica*, GEOIDE Student papers.
  - 1998 Editor (with Thomas Poiker), **Proceedings Spatial Data Handling 98**.
  - 1997 Editor, **Proceedings AUTO-CARTO 13**.
  - 1996-99 Associate Editor, **Cartography and Geographic Information Systems**
  - 1986-87 Editor, **Proceedings AUTO-CARTO 8**.
  - 1983-85 Co-editor, **Wisconsin Land Information Newsletter**, (4 issues).
  - 1977-81 Paper selection for 1977 Symposium on topological data structures and Harvard Graphics Weeks 1978-81.
- Reviewing of articles for many journals including **Cartography and Geographic Information Systems, Cartographica, International Journal of Geographical Information Science, Photogrammetric Engineering and Remote Sensing, Transactions in GIS, GeoInformatica, Annals AAG, Communications of the Association of Computing Machinery, IEEE Computer Graphics & Applications, Canadian Journal of Statistics, URISA Journal, The Information Society**, etc.
- Reviewing book manuscripts for Guilford Press, Prentice Hall, Butterworth, Taylor Francis, Wiley, MIT Press.

## Programming Experience

- Experience with compilers, graphics, packages on 18 operating systems.
- 1975-81 *ODYSSEY: a system for geographic information processing*
  - original design (with D. White), participated in pre-commercial development;
  - wrote *WHIRLPOOL: a program for polygon overlay* (with J. Dougenik)
- 1972-74 *POLYVRT: a program to convert geographic base files*

## **Consulting**

- 2007 Kim Geomatics, evaluation of geomatics prospects for Québec region, Pole QCA
- 2002-03 Geotrac, Dublin OH: Natural Hazards risk models for insurance industry
- 1996-97 ESRI, Redlands CA: database design for synthetic environments
- 1995 ESRI, Redlands CA: database design strategies for Defense Mapping Agency
- 1993-94 GIS advice for China in Space and Time. (University of Washington)
- 1993 Bliss Riordan, Anchorage AK (law firm); data quality of nautical charts
- 1992 IRIS Data Management Center: applicability of GIS to seismology
- 1990-92 ESRI, Redlands CA: database design and quality assurance for Digital Chart of the World project for Defense Mapping Agency (DMA)
- 1989 Battelle, Pacific Northwest Lab Richland: peer review of environmental database management system for Hanford site cleanup
- 1988-89 King County WA, Planning Graphics: assist in selection of GIS software
- 1987-89 ESRI, Redlands CA: consulting on indexing methods and data quality

## **Short Courses, etc.**

- 2011 Advantages of networking in geomatics, Semana geomatica, IGAC, Bogota, Colombia (1 day)
- 2005 GIS Analysis, GEOIDE Summer School (2 day)
- 2001 Technical issues in GIS, University of Redlands MGIS (1 week)
- 1996 Measurement Frameworks and Transformations, ESRI (2 day)
- 1996 Teaching GIS; Association of American Geographers, Charlotte (1 day)
- 1996 Cartography and GIS, Sylviculture Workshop, US Forest Service; (1 day)
- 1995 Visualization and Data Management, Sylviculture Workshop, US Forest Service; (half day)
- 1994 Data Quality in GIS; Swiss Computer Graphics Assoc., Zurich (2 day)
- 1993 Presentation on Digitizing and Data Quality; FORMEZ, Naples Italy (2 day)
- 1986 Course for state government officials on GIS & Natural Resources (week)
- 1983 Workshop on Alternative Land Registration Policies (week)
- 1981 GIS Workshop at Soil Survey, Rothampsted (UK) (day)
- 1980 Workshop on Topological Data Structures; Ordnance Survey UK (day)
- 1976 Workshop on GIS and Digital Cartography; Manila, Philipines (week)
- 1973-5 Workshop on Topological Data Structures; Harvard Univ. (3 1-week courses)

## Bibliography

### Peer-reviewed works (sorted by date);

(citation counts on Google Scholar at end; from 1 April 2017)

- Chrisman, N.R. 2017: Calculating on a round planet. *International Journal of Geographic Information Science*. 31(4) 637-657. <http://dx.doi.org/10.1080/13658816.2016.1215466> (1 citation)
- Chrisman, N.R. and Girres, J-F. 2016: First, do no harm: Eliminating systematic error in analytical results of GIS applications. Chapter 3, 27-44 In: W. Shi, B. Wu and A. Stein (eds.) *Uncertainty Modelling and Quality Control for Spatial Data*, CRC Press, Boca Raton FL. Prior version presented at ISSDQ 2013, Hong Kong. (5 citations)
- Pourali, S. Arrowsmith, C., Chrisman, N., Matkan, A. and Mitchell, D. 2014: *Topographic wetness index application in flood-risk-based land use planning*. **Applied Spatial Analysis and Planning**, 1-16. doi: 10.1007/s12061-014-9130-2. (2 citations)
- Samany, N, Delavar, M, Chrisman N., Malek, M. 2014: *FIA<sub>s</sub>: A customized Fuzzy Interval Algebra for modeling spatial relevancy in urban context-aware systems*, **Engineering Applications of Artificial Intelligence**, 33 116-126, DOI 10.1016/j.engappai.2014.04.004 <http://dx.doi.org/10.1016/j.engappai.2014.04.004>.
- Panel on developing science, technology, and innovation indicators for the future, 2013. *Capturing Change in Science, Technology, and Innovation: Improving Indicators to Inform Policy*. Litan, R., Wyckoff, A. and Fealing K. editors. National Academies Press, Washington DC. [http://www.nap.edu/openbook.php?record\\_id=18606](http://www.nap.edu/openbook.php?record_id=18606) (7 citations)
- Samany, N, Delavar, M, Chrisman N., Malek, M. 2013: *Modelling Spatio-Temporal Relevancy in Urban Context-Aware Pervasive Systems using Voronoi Continuous Range Query and Multi-Interval Algebra*, **Journal of Mobile Information Systems**, 9(2013) 189-208, DOI 10.3233/MIS-130154. (3 citations)
- Samany, N, Delavar, M, Chrisman N., Malek M. 2013: *Spatial Relevancy Algorithm for Context-aware Systems (SRACS) in Urban Traffic Networks using Dynamic Range Neighbour Query and Directed Interval Algebra*, **Journal of Ambient Intelligence and Smart Environments** 5(6) 605-619. <http://iospress.metapress.com/content/a83778w7576141q3/>
- Chrisman, N.R. 2012: A deflationary approach to fundamental principles in GIScience, In Harvey, F. (ed.) *Are there fundamental principles in Geographic Information Science?* <https://www.createspace.com/3932452> (4 citations)
- Devillers, R, Stein, A, Bédard, Y, Chrisman, N, Fisher, P, Shi, W. 2010: *30 years of research on spatial data quality – Achievements, failure and opportunities*. **Transactions in GIS** 14 (4) 387-400, DOI: 10.1111/j.1467-9671.2010.01224.x (53 citations)
- Poore, Barbara and Chrisman, N.R. 2006: *Order from Noise: Towards a social theory of information*, **Annals AAG** 96(3) 508–523. (40 citations)
- Chrisman, N.R. 2006: **Charting the Unknown: How computer mapping at Harvard**

- became GIS. ESRI Press. 240 pp. (89 citations)
- Chrisman, N.R. 2005: *Communities of Scholars: Places of Leverage in the History of Automated Cartography*. **Cartography and Geographic Information Science** 35(4) 425-433. (6 citations)
- Chrisman, N.R. 2005: *Full Circle: More than just Social Implications of GIS*. in Harvey, F. (special issue editor) **Cartographica** 40(4) 23-35. (106 citations)
- Chrisman, N.R. 2005 : *Traitement de la qualité: perspective historique*. Chapitre 2, p. 25-35 in Devillers, R. & Jeansoulin, R. (eds.) **Qualité de l'information géographique**, Hermès. also issued in English (2006) as *Fundamentals of Spatial Data Quality*, p. 21-30, Chapter 1 Development in the treatment of spatial data quality. (7)
- Chrisman, N.R. 2004: *Les SIG: un processus historique: Passé comme point d'appui vers le futur*. Chapter 1, p. 25-54 in Roche, S. and Caron, C. (editors), **Aspects organisationnelles des SIG**. Hermès.
- Harvey, Francis, and Chrisman, N. 2004: *The Imbrications of Geography and Technology: The Social Construction of Geographic Information Systems*. Chapter 4, pp. 65-80 in S. Brunn, S. Cutter & J. W. Harrington Jr. (editors), **Geography and Technology**. Kluwer Academic Publishers. (34)
- Chrisman, N.R. 2002: *Revisiting Fundamental Principles*, Chapter 2, p. 9-18 In Kidner, Higgs and White (editors) **Innovations in GIS**, Taylor & Francis. (4)
- Sismondo, Sergio and Chrisman, N. 2001: *Deflationary metaphysics and the natures of maps*, *Philosophy of Science* 68(3), Supplement: S38-S49. (29 citations)
- Chrisman, N.R., 2001: **Exploring Geographic Information Systems**. John Wiley. 270 pp. (Second edition) (794 citations)
- Chrisman, N.R. 1999: *A Transformational Approach to GIS operations*, **International Journal of GIS** 13(7) 617-637. (54 citations)
- Chrisman, N.R. 1999 *What does GIS mean?* **Transactions in GIS** 3(2) 175-186. (96)
- Chrisman, N.R. 1999: *Speaking Truth to Power: An Agenda for Change*. Chapter 3, p. 27-31 in K. Lowell & A. Jaton (editors) **Spatial Accuracy Assessment: Land Information Uncertainty in Natural Resources**, Ann Arbor Press. (18)
- Khorram, S., Biging, G.S, Chrisman, N.R., Colby, D.R., Congalton, R.G., Dobson, J.E., Ferguson, R.L., Goodchild, M.F., Jensen, J.R., and Mace, T.H. 1999: *Accuracy Assessment of Remote Sensing- Derived Change Detection*. ASPRS Monograph; ASPRS. (ISBN [1570830584](#)) (185 citations)
- Chrisman, N.R., 1998: *Academic Origins of GIS*, Chapter 3, p. 33-44 in T. Foresman (ed.) **The History of Geographic Information Systems: Perspectives from the Pioneers**, Prentice Hall. (29)
- Chrisman, N.R. 1998: *Rethinking Levels of Measurement in Cartography*. **Cartography and GIS**, 25 (4) 231-242. (54)
- Harvey, Francis and Chrisman, N. 1998: Boundary objects and the social construction of GIS technology. **Environment and Planning A**, 30(9): 1683-1694. (286 citations)



- Chrisman, N. and Harvey, F. 1998: *Extending the classroom: Closed and open corpus hyper-media supported learning*. **Journal of Geography in Higher Education**, 22(1), 11-18. (25 citations)
- Chrisman, N.R., 1998: *Beyond the snapshot: Changing the approach to change, error and process*, In M. Egenhofer and R. Golledge (editors) **Spatial and Temporal Reasoning in Geographic Information Systems**, Oxford Univ. Press. (53 citations)
- Chrisman, N.R., 1997: **Exploring Geographic Information Systems**. John Wiley. 298pp. (First edition) (citations included with Second Edition: 676)
- Chrisman, N.R. 1997: *John Sherman and the Origin of GIS*. **Cartographic Perspectives**, (27) 8-13. (1 citation)
- Chrisman, N.R., 1994: *Metadata required to determine the fitness of spatial data for use in environmental analysis*, Chapter 12, p. 177-190 in Michener, Brunt and Stafford (editors) **Environmental Information Management and Analysis**, Taylor & Francis. (18)
- Chrisman, N.R. and Lester, M.K., 1991: *A Diagnostic Test for Error in Categorical Maps*, **Proceedings AUTO-CARTO 10**, 330-348. (42 citations)  
<http://mapcontext.com/autocarto/proceedings/auto-carto-10/pdf/a-diagnostic-test-for-error-in-categorical-maps.pdf>
- Chrisman, N.R., 1991: *Determination de la Qualité des Données dans les S.I.G.*, **Bulletin de la Société Française de Photogrammétrie et Télédétection**, 122: 18-23.
- Chrisman, N.R., 1991: *The error component in spatial data*, Chapter 12, p. 165-174 in Maguire, D.J., Goodchild M.F. and Rhind, D.W. (editors) **Geographical Information Systems: Overview Principles and Applications**, Longmans. (257 citations)
- Chrisman, N.R., 1991: *Institutional and Societal Components of Cartographic Research*, Chapter 11 in Müller, J-C. (ed.) **Advances In Cartography**, Elsevier. (13)
- Chrisman, N.R., 1990: *Deficiencies of Sheets and Tiles: Building Sheetless Data bases*, **International Journal of Geographical Information Systems**, 4: 157-167. (33)
- Nyerges, T.L. and Chrisman, N.R., 1989: *A Framework for Model Curriculum Development in Cartography and Geographic Information Systems*, **Professional Geographer**, 41: 283-293. (64 citations)
- Chrisman, N.R., 1989: *Modelling error in overlaid categorical maps*, p. 21-34 in Goodchild, M.F. & Gopal, S. (editors) **Accuracy of Spatial Databases**, Taylor & Francis, London. (147 citations)
- Chrisman, N.R., Cowen, D.J., Fisher, P.F., Goodchild, M.F, and Mark, D.M., 1989: *Geographic Information Systems*, p. 776-796 in Gaile G.L. and Willmott, C.J. (editors) **Geography in America**, Merrill, Columbus. (777 citations)
- Chrisman, N.R., 1988: *The Risks of Software Innovation, a Case Study of the Harvard Lab*, **The American Cartographer**, 15: 291-300. (51)
- Langran, G. and Chrisman, N.R., 1988: *A Framework for Temporal Geographic Information*, **Cartographica**, 25(3): 1-14. (448 citations)
- Chrisman, N.R. and Yandell, B.S., 1988: *Effects of Point Error on Area Calculations: A*

- Statistical Model, Surveying and Mapping*, **48**: 241-246. (59 citations)
- Ventura, S.J., Chrisman, N.R., Connors, K., Gurda, R.F., and Martin, R.W., 1988: *A Land Information System for Soil Erosion Control Planning*, **Journal of Soil and Water Conservation**, **43**: 230-233. (49 citations)
- Beard, M.K., and Chrisman, N.R., 1988: *Zipper: a localized approach to edgematching*, **The American Cartographer**, **15**:163-172; earlier version 1986: *Zippering: software for merging maps*, **Proceedings ACSM**, **1**:153-161. (39 citations)
- Chrisman, N.R., 1987: *Design of information systems based on social and cultural goals*, **Photogrammetric Engineering and Remote Sensing**, **53**: 1367-1370; earlier version 1987: *Fundamental principles of geographic information systems*, **Proceedings AUTO-CARTO 8**: 31-40. (170 citations) <http://mapcontext.com/autocarto/proceedings/auto-carto-8/pdf/fundamental-principles-of-geographic-information-systems.pdf>
- Niemann, B.J. Jr., Sullivan, J.G., Ventura, S.J., Chrisman, N.R., Vonderohe, A.P., Mezera, D.F., and Moyer, D.D., 1987: *Results of the Dane County Land Records Project*, **Photogrammetric Engineering and Remote Sensing**, **53**: 1371-1378. (12)
- Chrisman, N.R., 1987: *Accuracy of map overlays: a reassessment*, **Landscape and Urban Planning**, **14**:427-439. reprinted 1990: p. 308-320 in **Introductory Readings in Geographic Information Systems**, D. Peuquet & D. Marble (editors), Taylor Francis. (104 citations)
- Chrisman, N.R., 1987: *A draft proposed standard for digital cartographic data quality*, in H. Moellering (ed.), **Report 8**, NCDCCDS, Columbus OH. [appeared unchanged, but unattributed in **The American Cartographer**, **15**(1)] (3 citations)
- Chrisman, N.R., 1987: *Efficient digitizing through the combination of appropriate hardware and software for error detection and editing*, **International Journal of Geographical Information Systems**: **1**: 265-277. reprinted 1990: p. 233-245 in **Introductory Readings in Geographic Information Systems**, D. Peuquet & D. Marble (editors), Taylor Francis. Earlier version: 1986: *Effective digitizing: advances in software and hardware*, **Proceedings ACSM**, **1**:162-171. (46)
- Dougenik, J.A., Chrisman, N.R., Niemeyer, D.R., 1985: *An algorithm to construct continuous area cartograms*, **Professional Geographer**, **37**:75-81. (143 citations)
- Chrisman, N.R., 1985: *An interim proposed standard for cartographic data quality*, 17-22 in H. Moellering (ed.), **Report 6**, NCDCCDS, Columbus OH; *Supporting documentation*, 113-134. and **Proceedings AUTO-CARTO 7**, <http://mapcontext.com/autocarto/proceedings/auto-carto-7/pdf/an-interim-proposed-standard-for-digital-cartographic-data-quality.pdf> (5)
- Chrisman, N.R., 1984: *On storage of coordinates in geographic information systems*, **Geoprocessing**, **2**:259-270. (16)
- Chrisman, N.R., Kaufman, J.L., Keifer, R.W., Lillesand, T.M., Mezera, D.F., Moyer, D.D., Muehrcke, P.C., Niemann, B.J., Scarpace, F.L., Scherz, J.P., Stanfield, J.D., Strasma, J.D., Vonderohe, A.P., Wolf, P.R., Woodward, D.A., 1984: *Land records modernization:*

- centers of excellence from a Wisconsin perspective*, **Computers, Environment and Urban Systems**, 9:219-227; later version with expanded authorship, 1984. **Wisconsin Land Information Reports: 2**, Institute for Envir. Studies, Madison. (6)
- Chrisman, N.R., 1984: *Alternatives for specifying quality standards for digital cartographic data quality*, 43-71 in H. Moellering (ed.), **Report 4**, NCDCCDS, Columbus OH. (5)
- Beard, M.K., Chrisman, N.R. and Patterson, T.D., 1984: *Integrating data for local resource planning: a case study of sand and gravel resources*, **Proceedings URISA**, 513-524. Also in W. Ripple (ed.) 1987: **GIS for Resource Management: A Compendium**, American Society for Photogrammetry and Remote Sensing, 87-98. (5)
- Chrisman, N.R., 1983: *The role of quality information in the long-term functioning of a geographic information system*, **Proceedings AUTO-CARTO 6**, 2:303-321; reprinted 1984: **Cartographica**, 21 (2&3):79-87 (Selected Papers from AUTO-CARTO 6). (233 citations) <http://mapcontext.com/autocarto/proceedings/auto-carto-6/pdf/the-role-of-quality-information-in-the-long-term-functioning.pdf>
- Chrisman, N.R., 1978: *Concepts of space as a guide to cartographic data structures*, 5: (34 pp.) in G. Dutton (ed.), **Harvard Papers on Geographic Information Systems**, Addison Wesley, Reading MA. (44 citations)
- Chrisman, N.R., 1978: *Comments on data structures to be discussed at an advanced study symposium on topological data structures for geographic information systems*, 1: 117-127 in G. Dutton (ed.), **Harvard Papers on Geographic Information Systems**, Addison Wesley, Reading MA.
- Peucker, T.K. and Chrisman, N.R., 1975: *Cartographic data structures*, **American Cartographer**, 2:55-69. (246 citations)

## Proceedings or journals with competitive selection or invitation

- Koletsis, Erin, Cartwright, W. and Chrisman, N. 2014: Identifying approaches to Usability Evaluation. Geospatial Science Research 3, RMIT, Melbourne. <http://ceur-ws.org/Vol-1307/paper4.pdf> (2 citations)
- Chrisman N.R. 2014: Integrated land evaluation: Story of a track not taken, in: Winter S. and Rizos, C (editors) Research @ Locate14. Canberra. (peer-reviewed paper online: <http://ceur-ws.org/Vol-1142/paper19.pdf>) ISSN: 1613-0073, urn:nbn:de:0074-1142-3.
- Pourali, Sayedhossein, Arrowsmith, C., Chrisman, N. Matkan, A. 2014: Vertical accuracy assessment of LiDAR ground points using minimum distance approach, in: Winter S. and Rizos, C (editors) Research @ Locate14. Canberra. (peer-reviewed paper online: <http://ceur-ws.org/Vol-1142/paper10.pdf>) ISSN: 1613-0073, urn:nbn:de:0074-1142-3. (5 citations)
- Chrisman N.R. 2013: Challenges in the geospatial sector, in: Denys, P. Strack, M. Moore, A.B. and Whigham, P (editors) Joint Proceedings of the NZIS Conference and the SIRCENZ 2013 Conference. Dunedin. (invited presentation, extended abstract)
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1973-80 co-author or editor, manuals for POLYVRT, CALFORM, ASPEX, ODYSSEY

## Appendix A: Professional Presentations

<i>Date</i>	<i>Conference or Organizer</i>	<i>Location</i>
2015	Invited Lecture, Centro Geo	Mexico, DF
2014	Research@Locate 2014	Canberra, ACT
2014	Dagstuhl Workshop on Spatial Reference	Dagstuhl, Germany
2014	Invited lecture, ITC University of Twente	Enschede, NL
2014	Invited lecture, CNRS	Lyon, France
2013	Invited keynote, SIRCNZ, NZIS	Dunedin, NZ
2013	ISSDQ 2013	Hong Kong
2013	Invited, Institute of Surveyors, Victoria	Ballarat, VIC
2013	IGARSS 2013	Melbourne, VIC
2012	Public lecture, RMIT	Melbourne, Australia
2012	Global Geospatial Conference 2012, Co-Director	Québec, QC
2012	AGILE 2012 (Invited keynote)	Avignon, France
2012	AAG, Invited Waldo Tobler Lecture, GIS Specialty Group	New York, NY
2011	CIST-GIS, sciences du territoire	Paris, France
2011	4S (Society for Social Studies of Science)	Cleveland, OH
2011	Géomatique 2011, ASCG Section Montréal	Montréal, QC
2011	Invited lecture, Semana geomatica (IGAC)	Bogota, Colombia
2011	International Cartographic Congress	Paris, France
2011	AGILE Conference	Utrecht, NL
2011	SKI Canada	Fernie, BC
2010	Gravel Bed Rivers 7	Tadousac, QC
2010	GIScience 2010	Zurich, CH
2010	Auto-Carto 2010	Orlando, FL
2010	Geomatics Seminar, University of Melbourne	Melbourne, Australia
2010	Canadian Geomatics Conference	Calgary AB
2010	Int. Society for Voronoi Diagrams	Québec, QC
2010	International Cluster Conference	Biloxi, MS
2009	International Cartographic Congress	Santiago, Chile
2009	Workshop on Earth Observation, Chilean Space Agency	Santiago, Chile
2009	Centro-Geo	Mexico DF, Mexico
2009	CEAZA	La Serena, Chile
2009	Universidad de Concepcion	Concepcion, Chile
2009	Universidad Austral de Chile	Valdivia, Chile
2009	Universidad Catolica	Santiago, Chile
2008	CRCSI Annual Conference	Brisbane, Australia
2008	Invited Keynote, Temporal Workshop, GIScience 08	Park City, UT
2008	Invited, StratAG launch	Maynooth, Ireland
2008	Network for Networks workshop, ISPRS Congress	Beijing, China
2008	CAG Annual Convention	Québec QC
2008	Institute for Catastrophic Loss Reduction	Toronto, ON
2008	Spatial Knowledge and Information	Fernie, BC
2008	Korean Land Surveying, Geodesy and Cartography	Calgary, AB
2008	Ontario Centres of Excellence	Niagara College, ON

2007	4th jMap User Conference, Kheops Technologies	Montréal, QC
2007	4S (Society for Social Studies of Science)	Montréal QC
2007	AGILE Conference	Aalborg, Denmark
2007	Invited Plenary, GISRUK	Maynooth, Ireland
2006	PAIGH Council	Santiago, Chile
2006	4S	Vancouver, BC
2006	SARSCENE (Search & Rescue Canada)	Ottawa
2006	Geo-Tech 2006; invited panelist	Ottawa
2006	Software Human Resources Council	Ottawa
2006	Institut M. Lamontagne (DFO)	Mont Joli, QC
2006	Environmental Geomatics Lecture, Rutgers Univ.	New Brunswick, NJ
2005	PEER Geomatics Pillar Conference	Montpellier, France
2005	GSDI Seminar, Atlantic Institute, MIT	Cambridge, MA
2005	SAGEO 2005	Avignon, France
2005	Geo-Tech 2005	Vancouver, BC
2005	AUTO-CARTO 2005	Las Vegas, NV
2004	ACFAS	Montréal, QC
2004	US Geological Survey, EROS Data Center	Sioux Falls, SD
2004	4S/ EASST	Paris, France
2003	ICHC (Int Conference on History of Cartography)	Cambridge, MA
2002	4S	Milwaukee, WI
2001	4S	Cambridge, MA
2001	GISRUK 2001, Invited Speaker	Cardiff, Wales
2000	Distributed Collective Practices Workshop	Paris, France
2000	4S/ EASST	Vienna, Austria
2000	Journées Cassini	La Rochelle, France
2000	CIRAD	Montpellier, France
2000	UMR Espace	Avignon, France
2000	Dangermond Invited Lecture: University of Cal-SB	Santa Barbara CA
2000	Association of American Geographers	Pittsburgh PA
1999	Society for the Social Studies of Science (4S)	San Diego CA
1999	GISOC (Geographic Information and Society)	Minneapolis MN
1998	Society for the Social Studies of Science (two papers)	Halifax NS
1998	Third International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences (invited plenary)	Québec City, Qc
1998	Workshop on Geolibraries (National Academy of Sciences)	Washington DC
1998	Washington Chapter Urban and Regional Science Association	Tukwilla WA
1997	Swiss Federal Institute of Technology (public lecture)	Lausanne, CH
1997	Symposium on Accuracy of Spatial Data (Cassini / IGN)	Paris, France
1997	Association of American Geographers	Fort Worth TX
1997	Thirteenth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 13) Conference Director	Seattle WA
1997	University of Hong Kong (two public lectures)	Hong Kong
1997	Hong Kong Polytechnic University (public lecture)	Hong Kong
1996	University of Oregon (Visiting Geographical Scientist Program, AAG)	Eugene OR
1996	Oregon State University (Visiting Geog. Scientist Program, AAG)	Corvallis OR
1996	Specialist Meeting, Initiative 19 (GIS and Society) National Center for Geographic Information and Analysis	South Haven MN

1996	"Social Practice of GIS" (public lecture) ESRI	Redlands CA
1996	Association of American Geographers	Charlotte NC
1995	GIS '95 (GIS World, Organizer) (Keynote Speaker)	Vancouver BC
1995	Twelfth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 12)	Charlotte NC
1994	"Is Climate Warming" series, Quaternary Research Center UW	Seattle WA
1994	Natural Resource Refresher Workshop, National Park Service	Seattle WA
1994	GIS and Society Workshop (local organizer, paper) NCGIA	Friday Harbor WA
1994	University of Zürich (public lecture and workshop)	Zurich, Switzerland
1994	Institut Géographique Nationale (workshops and public lecture)	Paris, France
1994	Association of American Geographers	San Francisco CA
1994	Northwest Computer Aided Mapping Association (keynote)	SeaTac WA
1993	GIS Analysis Workshop (organized by UW grad students)	Seattle WA
1993	Association of American Geographers	Atlanta GA
1993	Eleventh International Symposium on Computer-Assisted Cartography (AUTO-CARTO 11)	Minneapolis MN
1992	GIS/LIS 92	San Jose CA
1992	5th International Symposium on Spatial Data Handling	Charleston SC
1992	Spatial Data Transfer Standard Implementation Workshop	Gaithersburg, MD
1992	Automated Mapping/ Facilities Management Ass. (panel moderator)	San Antonio TX
1991	International Cartographic Association 15th Conference	Bournemouth, UK
1991	Specialist Meeting, Initiative 7 (Visualization of Data Quality)	
	National Center for Geographic Information and Analysis	Castine, ME
1991	Tenth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 10)	Baltimore, MD
1991	Association of American Geographers	Baltimore, MD
1990	Specialist Meeting, Initiative 10 (Remote Sensing & GIS)	
	National Center for Geographic Information and Analysis	Sioux Falls, SD
1990	Colloque "Intégration de la Photogrammétrie et de la Télédétection dans les S.I.G." Société Française de la Photogrammétrie et Télédétection	Strasbourg, France
1989	International Cartographic Congress	Budapest, Hungary
1989	Ninth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 9)	Baltimore, MD
1988	Specialist Meeting, Initiative 1 (Accuracy of Spatial Databases)	
	National Center for Geographic Information and Analysis	Santa Barbara, CA
1987	International Geographic Information System Symposium	Crystal City, VA
1987	Ohio State University, Department of Geodetic Sciences	Columbus, OH
1987	Eighth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 8) Conference Director	Baltimore, MD
1987	Association of American Geographers	Portland, OR
1986	Université Laval (public lecture)	Québec, QC
1986	AUTO-CARTO London	London, UK
1986	Fédération Internationale des Géomètres	Toronto, ON
1986	American Congress on Surveying and Mapping	Washington, DC
1986	Association of American Geographers	Minneapolis, MN
1985	Digital Charting Data User's Workshop	Gaithersburg, MD
1985	Seventh International Symposium on Computer-Assisted Cartography (AUTO-CARTO 7)	Washington, DC

1985	American Congress on Surveying and Mapping	Washington, DC
1984	Urban and Regional Information Systems Association	Seattle, WA
1984	American Congress on Surveying and Mapping	Washington, DC
1983	Sixth International Symposium on Automated Cartography (AUTO-CARTO 6)	Ottawa, ON
1983	American Congress on Surveying and Mapping	Washington, DC
1983	Harvard Computer Graphics Conference	Cambridge, MA
1982	Fifth International Symposium on Computer-Assisted Cartography (AUTO-CARTO 5)	Crystal City, VA
1982	International Society of Photogrammetry and Remote Sensing (ISPRS) Commission IV Symposium	Crystal City VA
1982	Harvard Computer Graphics Conference	Cambridge, MA
1980	2 <sup>nd</sup> Colloquium on Quantitative and Theoretical Geography	Cambridge, UK
1980	Social Science Research Council Symposium on Social Geography	Oxford, UK
1979	Premier Seminaire Internationale HBDS	Lisbon, Portugal
1979	Harvard Graphics Week	Cambridge, MA
1978	Harvard Graphics Week	Cambridge, MA
1977	First International Advanced Study Symposium on Topological Data Structures for Geographic Information Systems	Dedham, MA
1975	Urban and Regional Information Systems Association	Seattle, WA
1975	International Symposium on Computer-Assisted Cartography (AUTO-CARTO II)	Reston, VA
1975	Northeast Regional Science Association	Amherst, MA
1974	International Conference on Automation in Cartography (AUTO-CARTO I)	Reston, VA