

# References

1. A. Aguilera. Orthogonal Polyhedra: Study and Application. Ph.D. thesis, Universitat Politècnica de Catalunya, Barcelona, Spain, 1998.
2. T.M. Aldridge and A. van Velten. Apartment ownership in the European Union. *Notarius International*, pp. 17–30, 1997.
3. C. Arens. Maintaining reality: modelling 3D spatial objects in a Geo-DBMS using a 3D primitive. Technical Report M.Sc. thesis, Delft University of Technology, Delft, the Netherlands, 2003.
4. C. Arens, J.E. Stoter, and P.J.M. van Oosterom. Modelling 3D spatial objects in a GeoDBMS using a 3D primitive. *Computer & Geosciences*, March: 165–177, 2005.
5. C. Arens, J.E. Stoter, and P.J.M. van Oosterom. Modelling 3D spatial objects in a GeoDBMS using a 3D primitive. In *Proceedings AGILE 2003*, Lyon, France, April 2003.
6. Argentinean Federal Government. Ministerio de Justicia y Derechos Humanos. Ley 13.512. Regimen de la Propiedad Horizontal, Buenos Aires, Boletín oficial (in Spanish), 1948. Available online at [www.saij.jus.gov.ar/download/ley13512/13512.html/](http://www.saij.jus.gov.ar/download/ley13512/13512.html/).
7. S. Aronoff. *Geographic Information Systems: A Management Perspective*. WDL Publications, Ottawa, Canada, 1989.
8. B.G. Baumgart. Winged-edge polyhedron representation for computer vision. In *Proceedings of National Computer Conference*, Stanford, California, USA, May 1975, 589–596.
9. L.A. Belfore. An architecture supporting live updates and dynamic content in VRML based virtual worlds. In *Proceedings of Symposium on Military, Government and Aerospace Simulation 2002 (MGA 2002)*, San Diego, California, April 2002, 138–143.
10. M. Benhamu and Y. Doytsher. A multilayer 3D cadastre: problems and solutions. In *Proceedings FIG, ACSM/ASPRS*, Washington, D.C., USA, April 2002.
11. Bentley. Bentley MicroStation GeoGraphics. Spatial edition, 2004. Available online at [www.bentley.com/products](http://www.bentley.com/products).
12. E. Bignone, O. Henricsson, P. Fua, and M. Stricker. Automatic extraction of generic house roofs from high resolution aerial imagery. In *Proceedings of European Conference on Computer Vision—ECCV'96*, Vol. 1, Cambridge, U.K., April 1996, 85–96.
13. T. Blaschke and D. Tiede. Bridging GIS landscape analysis, modelling and 3D simulation. Is this already 4D? In *Proceedings of CORP 2003 Geo Multimedia*, Vienna University of Technology, Austria, February 2003.
14. L. Bodum. 3D mapping for urban and regional planning. In *Proceedings of URISA Annual Conference 2002*, Chigaco, Illinois, USA, 2002, 472–479.
15. P. Bottelier, R. Haagmans, and N. Kinneging. Fast reduction of high density multibeam echosounder data for near real-time applications. *Hydrographic Journal*, 98:23–28, 2000.
16. P.W. Bresters. 3D visualisations with the height model of the Netherlands (AHN). In *Proceedings of EuroSDR Commission V Workshop on Visualisation and Rendering*, Enschede, the Netherlands, January 2003.
17. British Columbian Government. Land Title Act. British Columbia, Canada, 1996.
18. British Columbian Government. Land Title Regulations. British Columbia, Canada, 1996.

19. R. Brügelmann. Automatic breakline detection from airborne laser range data. *International Archives of Photogrammetry and Remote Sensing*, 33(B3/1):103–110, 2000.
20. B. Cambray. Three-dimensional modelling in a geographical database. In *Proceedings Auto-Carto'11: 11th International Conference on Computer Assisted Cartography*, Minneapolis, Minnesota, USA, 1993, 338–347.
21. E. Carlson. Three-dimensional conceptual modelling of subsurface structures. In *Proceedings of ASPRS/ACSM Annual Convention*, Vol. 4, Baltimore, Maryland, USA, 1987, 188–200.
22. CGAL Consortium. CGAL Basic Library, 2004. Available online at [www.cgal.org](http://www.cgal.org).
23. P.P. Chen. The entity relationship model: toward a unified view of data. *ACM Transactions on Database Systems*, 1(1):9–36, 1976.
24. E. Clementini, P. Di Fellice, and P. van Oosterom. A small set of formal topological relationships suitable for end-user interaction. In *Proceedings of the Third International Symposium on Advances in Spatial Databases, SSD'93*, Vol. 692 of *Lecture Notes in Computer Science*, Singapore, June 23–25. Springer-Verlag, Berlin, 1993, 277–295.
25. V. Clerc, R. van Lammeren, A. Ligtenberg, H. Kramer, and A. Ligtenberg. Virtual reality in the landscape design process. In *Proceedings International Conference on Landscape Planning*, Portoroz, Slovenia, November 2002.
26. S. Cockcroft. Towards the automatic enforcement of integrity rules in spatial database systems. In *Proceedings of 8th Colloquium of the Spatial Information Research Centre*, University of Otago, Dunedin, New Zealand, July 1996, 33–42.
27. E.F. Codd. A relational model of data for large shared banks. *Communications ACM*, 13(6):377–387, 1970.
28. D. Comer. The ubiquitous B-tree. *ACM Computing Surveys*, 11(2):121–137, 1979.
29. V. Coors. Resource-adaptive 3D maps for LBS. In *Proceedings UDMS 2002*, Prague, Czech Republic, October 2002.
30. V. Coors. 3D GIS in networking environments. *Computers, Environments and Urban Systems (CEUS)*, 27(4):345–357, 2003.
31. V. Coors and V. Jung. Using VRML as an interface to the 3D Data Warehouse. In *Proceedings of the Third Symposium on VRML*, New York, USA, 1998, 121–129.
32. D.J. Cowen. GIS versus CAD versus DBMS: What are the differences? *Photogrammetric Engineering and Remote Sensing*, 54(11):1551–1555, 1988.
33. D.H. Douglas and T.K. Peucker. Algorithms for the reduction of points required to represent a digitized line or its caricature. *Canadian Cartographer*, 10(2):112–122, 1973.
34. S.E. Dowson and V.L.O. Sheppard. Land registration, page 47. Colonial Research Publications No. 13, 2nd ed. Her Majesty's Stationary Office, London, U.K., 1952.
35. S. Doyle, M. Dodge, and A. Smith. The potential of web-based mapping and virtual reality technologies for modelling urban environments. *Computers, Environments and Urban Systems (CEUS)*, 22(2):137–155, 1998.
36. Dutch Government. Belemmeringenwet Privaatrecht. Wet van 13 mei 1927, tot opheffing van privaatrechtelijke belemmeringen, Staatsblad 2001, 548 (in Dutch), 1927.
37. Dutch Government. Monumentenwet. Wet van 23 December 1988, to vervanging van de Monumentenwet, Staatsblad 1997, 291 (in Dutch), 1988.
38. Dutch Government. Dutch Civil Code (Burgerlijk Wetboek), Boek 5: Zakelijke rechten (in Dutch). The Hague, 1992.
39. Dutch Government. Wet Bodembescherming. Staatsblad 1994, 331 (in Dutch), 1994.
40. Dutch Government. Uitspraak van de Hoge Raad m.b.t. de status van kabels voor telecommunicatie. Hoge Raad 6 juni 2003, nr. 36.076, Jurisprudentie Onderneming & Recht 2003/222 (in Dutch), June 2003.

41. M. Egenhofer, M.J. Sharma, and D. Mark. A critical comparison of the 4-intersection and 9-intersection models for spatial relations: formal analysis. In *Proceedings of Autocarto 11*, Minneapolis, Minnesota, USA, October 1993.
42. M.J. Egenhofer. Spatial SQL: a query and presentation language. *IEEE Transactions on Knowledge and Data Engineering*, 6(1):86–95, 1994.
43. M.J. Egenhofer, E. Clementini, and P. Di Felice. Evaluating inconsistencies among multiple representations. In *Proceedings of 6th International Symposium on Spatial Data Handling*, Edinburgh, Scotland, 1994, 901–920.
44. M.J. Egenhofer and J. Herring. Categorizing binary topological relationships between regions, lines and points in geographic databases. Technical report, Department of Surveying Engineering, University of Maine, Orono, USA, 1991.
45. ERDAS, 2004. Available online at [www.erdas.com](http://www.erdas.com).
46. ESRI. ESRI, ArcGIS, 2004. Available online at [www.esri.com](http://www.esri.com).
47. C. Faloutsos and S. Roseman. Fractals for secondary key retrieval. In *Proceedings of the Eighth ACM Symposium on Principles of Database Systems*, Philadelphia, Pennsylvania, USA, March 1989, 247–252.
48. FIG. The FIG Statement on the Cadastre. Technical Report Publication 11, Federation International des Géomètres, Commission 7, 1995.
49. FIG. Cadastre 2014, a vision for a future cadastral system. Technical report, Federation International des Géomètres, Commission 7, J. Kaufmann and D. Steudler, 1998.
50. FIG. The Bathurst Declaration on Land Administration for Sustainable Development. Technical Report Publication 21, Federation International des Géomètres, October 1999.
51. S. Flick. An object-oriented framework for the realisation of 3D Geographic Information Systems. In *Proceedings of the Second Joint European Conference and Exhibition on Geographical Information*, Barcelona, Spain, 1996, 187–196.
52. J. Forrai and G. Kirschner. Transition from two-dimensional legal and cadastral reality to a three-dimensional case. In *Proceedings of International Workshop on 3D Cadastres*, FIG. Delft, the Netherlands, 28–30 November 2001, 9–24.
53. J. Forrai and G. Kirschner. An interdisciplinary 3D cadastre development project in practice. In *Proceedings FIG Working Week 2003*, Paris, France, April 2003.
54. W. Förstner. A framework for low level feature extraction. In *Proceedings of Computer Vision—ECCV94*, Vol. 2, Stockholm, Sweden, 1994, 383–394.
55. C. Fowler and E. Treml. Building a marine cadastral information system for the United States—a case study. *Computers, Environments and Urban Systems (CEUS)*, 25(4–5): 493–507, 2001.
56. J. Gerremo and J. Hansson. Ownership and real property in British Columbia: a legal study. Technical Report M.Sc. thesis 48, Royal Institute of Technology, Department of Real Estate and Construction Management, Division of Real Estate Planning and Land Law, Stockholm, Sweden, 1998.
57. B. Gorte. Segmentation of TIN-structured surface models. In *Proceedings of Joint Conference on Geo-spatial Theory, Processing and Applications*, Ottawa, Canada, July 2002.
58. K. Gray and S.F. Gray. *Elements of Land Law*. Oxford University Press, Oxford, U.K., 2004.
59. A. Grinstein. Different aspects of a 3D cadastre in the new town Modi'in, Israel. In *Proceedings of International Workshop on 3D Cadastres*, FIG. Delft, the Netherlands, 28–30 November 2001, 25–34.
60. R. Grinstein. A real-world experiment in 3D cadastre: mapping of underground parking for registration rights. *GIM International*, September 2003, 65–67.

61. R. Groot and J. McLaughlin, Eds. *Geospatial Data Infrastructure—Concepts, Cases, and Good Practice*. Oxford University Press, Oxford, U.K., 2000.
62. M. Gruber, M. Pasko, and F. Leberl. Geometric versus texture detail in 3D models of real world buildings. In *Proceedings of Ascona Workshop 95 on Automatic Extraction of Man-Made Objects from Aerial and Space Images*, Basel, Switzerland, 1995. Birkhäuser Verlag, 189–198.
63. A. Grün and X. Wang. CC-modeller: a topology generator for 3D city models. *ISPRS Journal*, 53(5):286–295, 1998.
64. A. Guttman. R-trees: a dynamic index structure for spatial searching. In *Proceedings ACM International Conference on Management of Data*, Boston, Massachusetts, USA, June 1984, 188–196.
65. N. Haala. Combining multiple data sources for urban data acquisition. In *Proceedings of Photogrammetric Week 1999*, Stuttgart, Germany, September 1999, 329–339.
66. P. de Haan. Eigendom, beheer en registratie van ondergrondse infrastructuur (in Dutch). *Nederlands Juristenblad*, 79:564–570, 2004.
67. P. de Haan. Eigendomsverhoudingen bij privatisering van energiebedrijven (in Dutch). *Bouwrecht*, 41(4):283–292, 2004.
68. R.M. van Heerd et al. Productspecificatie AHN 2000. Technical Report MDTGM 2000.13, Rijkswaterstaat, Meetkundige Dienst, 2000.
69. J. Henssen. Basic principles of the main cadastral systems in the world. In *Proceedings of One Day Seminar Held During the Annual Meeting of Commission 7, Cadastre and Rural Land Management*, FIG, Delft, the Netherlands, May 1995.
70. I. Heywood, S. Cornelius, and S. Carver. *An Introduction to Geographical Information Systems*. Prentice Hall, Englewood Cliffs, New Jersey, USA, 1998.
71. F. Hobbs and C. Chan. AutoCAD as a cartographic training tool: a case study. *Computer Aided Design*, 22(3):151–159, 1990.
72. M. Hoefsloot. 3D Geo-Informatie uit bestaande CAD modellen (in Dutch). Technical Report M.Sc. case study report, TU Delft, Section GIS Technology, 2003.
73. E. Hoel, S. Menon, and S. Morehouse. Building a robust relational implementation of topology. In *Proceedings of 8th International Symposium on Spatial and Temporal Databases*, Santorini, Greece, July 2003, 508–524.
74. A.D. Hofmann, H.-G. Maas, and A. Streilein. Knowledge-based building detection based on laser scanner data and topographic map information. In *Proceedings of Symposium on Photogrammetric Computer Vision, ISPRS Commission III*, Graz, Austria, September 2002, 169–174.
75. R. Hoinkes and E. Lange. 3D for free—toolkit expands visual dimensions in GIS. *GIS World*, 8(7):54–56, 1995.
76. T. Höllerer, S. Feiner, T. Terauchi, G. Rashid, and D. Hallaway. Exploring MARS: developing indoor and outdoor user interfaces to a mobile augmented reality system. *Computers and Graphics*, 23(6):779–785, 1999.
77. M. Huml. Legal view, conditions and experiences in the Czech Republic. In *Proceedings International Workshop on 3D Cadastres*, Delft, the Netherlands, November 2001.
78. IBM. IBM DB2 Spatial Extender User's Guide and Reference. Special Web release edition. Technical report, IBM, 2000.
79. Informix. Informix Spatial DataBlade Module User's Guide. Technical Report Part no. 000-8441, Informix, 2000.
80. Ingres. CA-OpenIngres, INGRES/Object Management Extension User's Guide, Release 6.5. Technical report, 1994.
81. Intergraph. Geomedia, 2004. Available online at [www.intergraph.com](http://www.intergraph.com).

82. ISO. ISO/TC 211, Geographic information/Geomatics, Revised report of the secretariat to the 17th plenary meeting of ISO/TC 211 in Berlin, Germany, 2003-10-30/31. Technical report, 2003.
83. ISO. ISO/TC 211, ISO International standard 19107:2003, Geographic Information—Spatial Schema. Technical report, 2003.
84. K. Jacobsen and P. Lohmann. Segmented filtering of laser scanner DSMs. In *Proceedings of ISPRS Working Group III/3 Workshop 3D Reconstruction from Airborne Laserscanning and InSAR Data*, Dresden, Germany, October 2003, 87–93.
85. J. de Jong. *Erfpacht en opstal* (in Dutch). Kluwer, Deventer, the Netherlands, 1995.
86. J. de Jong. Juridische aspecten van ondergronds bouwen (in Dutch). *Bouwwrecht*, 35(6):453–459, 1998.
87. B. Julstad and A. Ericsson. Property formation and three-dimensional property units in Sweden. In *Proceedings of International Workshop on 3D Cadastres, FIG*, Delft, the Netherlands, 28–30 November 2001, 173–190.
88. A.P. Kap and J.A. Zevenbergen. Valkuilen en kansen bij de opzet van landelijke registraties: een (inter)nationale vergelijking (in Dutch). Technical report, Department of Geodesy, Delft University of Technology, 2000.
89. H. de Kluijver and J.E. Stoter. Noise mapping and GIS: optimising quality and efficiency of noise effect studies. *Computers, Environment and Urban Systems (CEUS)*, 27(1):85–102, 2003.
90. M. Kofler. R-trees for Visualizing and Organizing Large 3D GIS Databases. Ph.D. thesis, Institute for Computer Graphics and Vision (ICGV), Graz University of Technology, Austria, 1998.
91. T.H. Kolbe, G. Gröger, and L. Plümer. CityGML—interoperable access to 3D city models. In *Proceedings of the First International Symposium on Geo-Information for Disaster Management GI4DM*, Delft, the Netherlands, March 21–23 2005. LNCS, Springer Verlag, Berlin.
92. M.J. Kraak and F.J. Ormeling. *Cartography, Visualization of Spatial Data*. Addison-Wesley, London, 1996.
93. S. Landes. Funktionalität des internetbasierten 3D Campus Informations Systems der Universität Karlsruhe. Ph.D. thesis, Institute für Photogrammetrie und Fernerkundung, Karlsruhe, Germany, 1999.
94. Laser-Scan Radius. Laser-Scan Radius Topology, 2004. Available online at [www.radius.laser-scan.com](http://www.radius.laser-scan.com).
95. Laser-Scan Radius Topology. Radius Topology Database Administrator's Guide, Issue 1.0 for Radius Topology Version 2.0. Technical report, Laser-Scan Limited, Cambridge, U.K., April 2003.
96. R. Laurini. *Information Systems for Urban Planning, a Hypermedia Cooperative Approach*. Taylor & Francis, New York, USA, 2001.
97. S.H. Lee and K. Lee. Partial Entity Structure: a compact non-manifold boundary representation based on partial topological entities. In *Proceedings Sixth ACM Symposium on Solid Modeling and Applications*, 159–170. Ann Arbor, Michigan, USA, June 2001.
98. C.H.J. Lemmen, P. van der Molen, P.J.M. van Oosterom, H. Ploeger, C.W. Quak, J.E. Stoter, and J.A. Zevenbergen. A modular standard for the Cadastral Domain. In *Proceedings of Digital Earth*, Brno, Czech Republic, September 2003.
99. U. Lenk. Strategies for integrating height information and 2D GIS data. In *Proceedings of Joint OEEPE/ISPRS Workshop from 2D to 3D, Establishment and Maintenance of National Core Spatial Databases*, Hannover, Germany, October 2001.

100. C. Lindenbeck and H. Ulmer. Geology meets virtual reality: VRML visualisation server applications. In *Proceedings of WSCG'98 (Sixth International Conference in Central Europe on Computer Graphics and Visualization)*, Vol. III, Plzen, Czech Republic, February 1998, 402–408.
101. P.D. Lindstrom, W. Koller, W. Ribarsky, L. Hodges, N. Faust, and G.A. Turner. Real-time, continuous level of detail rendering of height fields. In *Proceedings of SIGGRAPH'96 (23rd Annual Conference on Computer Graphics and International Techniques)*, New Orleans, Louisiana, USA, August 1996, 109–118.
102. T.L. Logan and N.A. Bryant. Spatial data software integration: merging CAD/CAM/Mapping with GIS and image processing. *Photogrammetric Engineering and Remote Sensing*, 53(10):1391–1395, 1987.
103. M.A. de Lòpez. Country Report 2003 Argentina—Based on the PCGIAP-Cadastral Template, 2003. Available online at [www.cadastraltemplate.org/](http://www.cadastraltemplate.org/).
104. L. Louwman. De inschrijving van netwerktekeningen (in Dutch). *De Stichting tot Bevordering der Notariële Wetenschap*, 6547:720–722, 2003.
105. J. Louwsma, T.P.M. Tijssen, and P.J.M. van Oosterom. A comparison between topologically structured and “plain” spatial data. *Geoconnexion*, June 2003.
106. D.W. Lowe. Fitting parameterized three-dimensional models to images. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 13(5):441–450, 1991.
107. H. Luttermann and M. Grauer. Using interactive, temporal visualizations for WWW-based presentation and exploration of spatio-temporal data. In *Proceedings of Spatio-Temporal Database Management 1999, International Workshop STDBM'99*, Edinburgh, Scotland, September 1999, 100–118.
108. D.J. Maguire. Improving CAD-GIS Interoperability, 2003. Available online at [www.esri.com/news/arcnews/winter0203/articles/improving-cad.html](http://www.esri.com/news/arcnews/winter0203/articles/improving-cad.html).
109. D.J. Maguire, M.F. Goodchild, and D.W. Rhind. *Geographic Information Systems: Principles and Applications*. Longman Scientific and Technical, Harlow, Essex, U.K., 1991.
110. MapInfo. Mapinfo, 2004. Available online at [www.mapinfo.com](http://www.mapinfo.com).
111. H. Mattsson. Towards three dimensional properties in Sweden. In *Proceedings of European Faculty of Land Use and Development, 32nd International Symposium*, Strassbourg, France, October 2003.
112. E. Mitrofanova. The needs and possibilities for three-dimensional determination of real estate in Ukraine. In *Proceedings International Workshop on 3D Cadastres*, Delft, the Netherlands, November 2001.
113. M. Molenaar. Single valued vector maps: a concept in geographic information systems. *Geo-Informationssysteme*, 2(1):18–26, 1989.
114. M. Molenaar. A topology for 3D vector maps. *ITC Journal*, 1992(1):25–33, 1992.
115. M. Mortenson. *Geometric Modelling*, 2nd ed. John Wiley & Sons, New York, USA, 1997.
116. S.M. Movafagh. GIS/CAD Convergence Enhances Mapping Applications. *GIS World*, 8(5):44–47, May 1995.
117. MySQL, 2004. Available online at [dev.mysql.com](http://dev.mysql.com).
118. S. Nebiker. Support for visualisation and animation in a scalable 3D GIS environment: motivation, concepts and implementation. In *Proceedings of ISPRS Commission V Working Group 6, Workshop on Visualization and Animation of Reality-Based 3D Models*, Engadin, Switzerland, February 2003.
119. H. Netzel and F. Kaalberg. Settlement risk management with GIS for the North/South Metroline in Amsterdam. In *Proceedings of World Tunnel Congress*, Oslo, Norway, 1999.

120. R.G. Newell and T.L. Sancha. The difference between CAD and GIS. *Computer-Aided Design*, 22(3):131–135, 1990.
121. S. Ng'ang'a, M. Sutherland, S. Cockburn, and S. Nichols. Towards a 3D marine cadastre in support of good ocean governance. In *Proceedings of International Workshop on 3D Cadastres*, FIG, Delft, the Netherlands, 28–30 November 2001, 99–114.
122. E. van Nieuwburg. Visualisatie van 3D geo-informatie met VRML/X3D (in Dutch). Technical Report MSc case study report, TU Delft, Section GIS Technology, 2003.
123. P.R. van Nieuwenhuizen and F.W. Jansen. Computer graphics lecture notes. Technical report, Delft University of Technology, Delft, the Netherlands, 2002.
124. NIST, 2004. Available online at [cic.nist.gov/vrml/vbdetect.html](http://cic.nist.gov/vrml/vbdetect.html).
125. D. Nebert (Technical Working Group Chair of Global Spatial Data Infrastructure). Developing Spatial Data Infrastructures: The SDI Cookbook, version 1.1, May 2001. Available online at [www.gsdi.org/pubs/cookbook/cookbook0515.pdf](http://www.gsdi.org/pubs/cookbook/cookbook0515.pdf).
126. H. Onsrud. Making laws for 3D cadastre in Norway. In *Proceedings FIG, ACSM/ASPRS*, Washington, D.C., USA, April 2002.
127. H. J. Onsrud. The land tenure system of the United States. *Forum (Zeitschrift des Bundes der Öffentlich Bestellten Vermessungsingenieure)*, (January), 1989.
128. P.J.M. van Oosterom. The GAP-tree, an approach to “On-the-Fly” map generalization of an area partitioning. In J.C. Müller, J.P. Lagrange, and R. Weibel, Eds., *GIS and Generalization, Methodology and Practice*, Taylor & Francis, New York, USA, 1995, 120–132.
129. P.J.M. van Oosterom and C.H.J. Lemmen. Spatial data management on a very large cadastral database. *Computers, Environments and Urban Systems (CEUS)*, 25(4–5): 509–528, 2001.
130. P.J.M. van Oosterom, B. Maessen, and C.W. Quak. Spatial, thematic and temporal views. In *Proceedings of 9th International Symposium on Spatial Data Handling*, Beijing, China, 10–12 August 2000.
131. P.J.M. van Oosterom, H.D. Ploeger, and J.E. Stoter. Analysis of 3D property situations in the USA. In *Proceedings of FIG Working Week*, Cairo, Egypt, April 2005.
132. P.J.M. van Oosterom, C.W. Quak, and T.P.M. Tijssen. Testing current DBMS products with real spatial data. In *Proceedings UDMS 2002*, Prague, Czech Republic, October 2002.
133. P.J.M. van Oosterom, C.W. Quak, and T.P.M. Tijssen. Polygons: the unstable foundation of spatial modeling. In *Proceedings ISPRS Joint Workshop on Spatial, Temporal and Multi-dimensional Data Modelling and Analysis*, Quebec, Canada, October 2003.
134. P.J.M. van Oosterom and V. Schenkelaars. The development of an interactive multi-scale GIS. *International Journal of Geographical Information Science*, 9(5):489–507, 1995.
135. P.J.M. van Oosterom, J.E. Stoter, and F. Jansen. *Bridging the Worlds of CAD and GIS*, chap. 1 Taylor & Francis, New York, USA, 2005.
136. P.J.M. van Oosterom, J.E. Stoter, W.C. Quak, and S. Zlatanova. The balance between geometry and topology. In D. Richardson and P.J.M. van Oosterom, Eds., *Proceedings of 10th International Symposium on Spatial Data Handling*, Ottawa, Canada, July 2002.
137. P.J.M. van Oosterom, J.E. Stoter, E. Verbree, and S. Zlatanova. 3D GIS komt er wel, maar 't zal wel even duren (in Dutch). *VI Matrix*, 10(3):20–23, 2002.
138. P.J.M. van Oosterom, J.E. Stoter, E. Verbree, and S. Zlatanova. Onderzoek brengt 3D GIS in gangbare geo-informatie naderbij (in Dutch). *VI Matrix*, 10(5):26–29, 2002.
139. P.J.M. van Oosterom, W. Vertegaal, M. van Hekken, and T. Vijlbrief. Integrated 3D modelling within a GIS. In *Proceedings of Advanced Geographic Data Modelling*:

*Spatial Data Modelling and Query Languages for 2D and 3D Applications*, Delft, the Netherlands, September 1994, 80–95.

140. OpenGIS Consortium. OpenGIS Simple Features Specification for SQL. Technical Report Revision 1.1, OpenGIS Project Document 99-049, OpenGIS Consortium, Wayland, Massachusetts, USA, 1999.
141. OpenGIS Consortium. OGC Web Terrain Server (WTS), version 0.3.2. Technical Report OGC 01-061, Wayland, Massachusetts, USA, 2001.
142. OpenGIS Consortium. OpenGIS Abstract and Implementation Specifications, 2001. Available online at [www.opengis.org/techno/specs.htm](http://www.opengis.org/techno/specs.htm).
143. OpenGIS Consortium. Request Number 12, Geometry Working Group, A Request for Proposals: OpenGIS Feature Geometry. Technical report, Wayland, Massachusetts, USA, 2001.
144. OpenGIS Consortium. The OpenGIS Abstract Specification, Topic 1: Feature Geometry (ISO 19107 Spatial Schema), Version 5. Technical Report OpenGIS Project Document 01-101, Wayland, Massachusetts, USA, 2001.
145. OpenGIS Consortium. Web Map Service Implementation Specification, version 1.1.1. Technical Report OGC 01-068r2, Wayland, Massachusetts, USA, 2001.
146. OpenGIS Consortium. Web Feature Service Implementation Specification, version 1.0.0. Technical Report OGC 02-058, Wayland, Massachusetts, USA, 2002.
147. OpenGIS Consortium. OpenGIS Geography Markup Language (GML) Implementation Specification. Technical Report 02-023r4, Wayland, Massachusetts, USA, 2003.
148. OpenGIS Consortium. OpenGIS Reference Model. Technical report, Wayland, Massachusetts, USA, 2003.
149. OpenGIS Consortium. OpenGIS Web Map Server Cookbook. Technical Report 03-050r1, Wayland, Massachusetts, USA, 2003.
150. OpenGIS Consortium. Web Coverage Service (WCS), version 1.0.0. Technical Report OGC 03-065r6, Wayland, Massachusetts, USA, 2003.
151. OpenGIS Consortium. OGC, 2004. Available online at [www.opengis.org](http://www.opengis.org).
152. Oracle. Oracle Spatial User's Guide and Reference Release 9.2 part number a96630-01. Technical report, ORACLE, March 2002.
153. Oracle Spatial 10g. Oracle Spatial User's Guide and Reference Release 10.1, 2004. Available online at [www.oracle.com/pls/db10g/db10g.show\\_toc](http://www.oracle.com/pls/db10g/db10g.show_toc).
154. A. Osskó. Problems in registration in the third vertical dimension in the unified Land Registry in Hungary, and possible solution. In *Proceedings International Workshop on 3D Cadastres*, Delft, the Netherlands, November 2001, 305–314.
155. W. Pasman and F.W. Jansen. Scheduling level of detail with guaranteed quality and cost. In *Proceedings of 7th International Conference on 3D Web Technology*, Tempe, Arizona, USA, February 2002, 43–51.
156. W. Pasman, A. van der Schaaf, R.L. Lagendijk, and F.W. Jansen. Low latency rendering and positioning for mobile augmented reality. In *Proceedings of Vision Modeling and Visualization '99*, Erlangen, Germany, November 1999, 309–315.
157. R. Passini and D. Betzner. Filtering of digital elevation models. In *Proceedings FIG, ACSM/ASPRS*, Washington, D.C., USA, April 2002.
158. PCIGEOMATICS, 2004. Available online at [www.pcigeomatics.com](http://www.pcigeomatics.com).
159. W. Peng. Automated Generalization in GIS. Ph.D. thesis, Wageningen University, ITC, the Netherlands, 1997.
160. F. Penninga. Detectie van kenmerkende hoogtepunten in TIN's voor iteratieve datareductie (in Dutch). In *Proceedings of Geo-Informatiedag Nederland 2002*, Ede, the Netherlands, February 2002.
161. F. Penninga. Oracle 10g Topology: Testing Oracle 10g Topology Using Cadastral Data. Technical Report GIS report 26, Delft, the Netherlands, 2004.



162. S. Pigot. A Topological Model for a 3-Dimensional Spatial Information System. Ph.D. thesis, University of Tasmania, Australia, 1995.
163. M. Pilouk. Integrated Modeling for 3D GIS. Ph.D. thesis, Wageningen University, ITC, the Netherlands, 1996.
164. E. Pogorelčnik and M. Korošec. Land cadastre and building cadastre in Slovenia: current situation and potential of 3D data. In *Proceedings International Workshop on 3D Cadastres*, Delft, the Netherlands, November 2001, 79–90.
165. PostGIS. PostGIS Manual, 2002. Available online at [postgis.refractor.net/docs](http://postgis.refractor.net/docs).
166. PostgreSQL, 2004. Available online at [www.postgresql.org](http://www.postgresql.org).
167. C.W. Quak, T.P.M. Tijssen, and J.E. Stoter. Topology in spatial DBMSs. In *Proceedings of Digital Earth*, Brno, Czech Republic, September 2003.
168. Queensland Government. Land Title Act 1994, reprinted as in force on 16 May 2003. Queensland, Australia, 2003.
169. Queensland Government. Registrar of Titles Directions for the Preparation of Plans. Queensland, Australia, 2003.
170. R. Ramakrishnan and J. Gerhke. *Database Management Systems*. McGraw-Hill Higher Education, New York, 2003.
171. S. Rana and J. Sharma, Eds. *The Role of DBMS in New Generation GIS Architecture*. Springer, New York, USA, 2005.
172. D.E. Richardson. Automated Spatial and Thematic Generalization Using a Context Transformation Model. Ph.D. thesis, Wageningen University, the Netherlands, 1993.
173. P. Rigaux, M. Scholl, and A. Voisard. *Spatial Databases with Applications to GIS*. Morgan Kaufmann, San Diego, California, USA, 2001.
174. R. Rijkers, M. Molenaar, and J. Stuur. A query oriented implementation of a 3D topological data structure. In *Proceedings of EGIS'93*, Genoa, Italy, 1993, 1411–1420.
175. G. Roberts, A. Evans, A. Dobson, B. Denby, S. Cooper, and R. Hollands. Look beneath the surface with augmented reality. *GPS World*, February 2002.
176. J. Ruppert. A Delaunay refinement algorithm for quality 2-dimensional mesh generation. *Journal of Algorithms*, 18(3):548–585, 1995.
177. M. Saadi Mesgari. Topological Cell-Tuple Structures for Three-Dimensional Spatial Data. Ph.D. thesis, University of Twente, ITC, the Netherlands, 2000.
178. A. Schutzberg. Bringing GIS to CAD: a developer's challenge. *GIS World*, 8(5):48–54, 1995.
179. S. Shekhar and S. Chawla. *Spatial Databases, A Tour*. Prentice Hall, Englewood Cliffs, New Jersey, USA, 2003.
180. I.D.H. Shepherd. Mapping with desktop CAD: a critical review. *Computer Aided Design*, 22(3):136–150, 1990.
181. J.R. Shewchuk. Triangle: engineering a 2D quality mesh generator and Delaunay triangulator. In *Proceedings of First Workshop on Applied Computational Geometry*, Philadelphia, Pennsylvania, USA, May 1996, 124–133.
182. J.R. Shewchuk. The Quake Project, 2004. Available online at [www-2.cs.cmu.edu/quake](http://www-2.cs.cmu.edu/quake).
183. W.Z. Shi, B.S. Yang, and Q.Q. Li. An object-oriented data model for complex objects in three-dimensional geographic information systems. *International Journal of Geographical Information Science*, 17(5):411–430, 2003.
184. U. Shoshani, M. Benhamu, E. Goshen, S. Denekamp, and R. Bar. A multi layers 3D cadastre in Israel: a research and development project recommendations. In *FIG Working Week*, Cairo, Egypt, 21–26 April 2005.
185. S.R. Simpson. *Land Law and Registration, Book 1*. Surveyor Publications, London, 1984.

186. J.W.N. van Smaalen. Automated Aggregation of Geographic Objects, A New Approach to the Conceptual Generalisation of Geographic Databases. Ph.D. thesis, TU Delft, ITC, the Netherlands, 2003.
187. A.P. Smith, M. Dodge, and S. Doyle. Visual Communication in Urban Planning and Urban Design, report to the Advisory Group on Computer Graphics. Technical Report CASA paper 2, 1998.
188. H.J. Snijders and E.B. Rank-Berenschot. *Goederenrecht* (in Dutch). Kluwer, Deventer, the Netherlands, 2001.
189. M. Stonebraker. *Object-Relational DBMSs: The Next Great Wave*. Morgan Kaufmann, San Francisco, California, USA, 1996.
190. J.E. Stoter. 3D Cadastre. Ph.D. thesis, Delft University of Technology, Netherlands Geodetic Commission, Delft, the Netherlands, 2004.
191. J.E. Stoter and B.Gorte. Height in the cadastre, integrating point heights and parcel boundaries. In *Proceedings FIG Working Week*, Paris, France, April 2003.
192. J.E. Stoter and P.J.M. van Oosterom. Incorporating 3D geo-objects into a 2D geo-DBMS. In *Proceedings FIG, ACSM/ASPRS*, Washington, D.C., USA, April 2002.
193. J.E. Stoter, F. Penninga, and P.J.M. van Oosterom. Generalization of integrated terrain elevation and 2D object models. In *Proceedings of 11th International Symposium on Spatial Data Handling*, Leicester, U.K., August 2004.
194. J.E. Stoter and M. Salzmann. Where do cadastral needs and technical possibilities meet? *Computers, Environments and Urban Systems (CEUS)*, 27(4):395–410, 2003.
195. J.E. Stoter and S. Zlatanova. 3D GIS where are we standing? In *Proceedings ISPRS Workshop on Spatial, Temporal and Multi-Dimensional Data Modelling and Analysis*, Quebec, Canada, October 2003.
196. J.E. Stoter and S. Zlatanova. Visualising and editing of 3D objects organised in a DBMS. In *Proceedings of EuroSDR Com V Workshop on Visualisation and Rendering*, Enschede, the Netherlands, January 2003.
197. M. Sun, J. Chen, and A. Ma. Construction of complex city landscape with the support of CAD. In *Proceedings International Workshop on Visualization and Animation of Landscape*, Kunming, China, February 2001.
198. I. Suveg and M.G. Vosselman. Automatic 3D reconstruction of buildings. In *Proceedings of SPIE Photonics West, Electronic Imaging, Three-Dimensional Image Capture and Applications V, conference 4661*, San Jose, California, USA, 2002, 59–69.
199. Swedish Government. Tredimensionell fastighetsindelning (in Swedish), 2004. Available online at [justitie.regeringen.se/sb/d/1917/a/12244](http://justitie.regeringen.se/sb/d/1917/a/12244).
200. P.J.G. Teunissen. *Adjustment Theory, An Introduction*. Delft University Press, Deventer, the Netherlands, 2003.
201. W.J.M. Teunissen and P.J.M. van Oosterom. The Creation and Display of Arbitrary Polyhedra in HIRASP. Technical Report 88-20, University of Leiden, Leiden, the Netherlands, 1988.
202. M.D. Thomas. *Oracle XSQL: Combining SQL, Oracle Text, XSLT, and Java to Publish Dynamic Web Content*. Wiley Europe, West Sussex, U.K., 2003.
203. L. Ting and I.P. Williamson. Cadastral trends: a synthesis. *The Australian Surveyor*, 4(1):46–54, 1999.
204. D.C. Tsichritzis and F.H. Lochovsky. *Data Models*. Prentice-Hall International, Englewood Cliffs, New Jersey, USA, 1982.
205. J. Ullman and J. Widom. *A First Course in Database Systems*, 2nd ed. Prentice-Hall, Englewood Cliffs, New Jersey, USA, 2001.
206. UML. OMG Unified Modeling Language Specification, Version 1.5. Technical Report formal/03-03-01, an adopted formal specification of the Object Management Group, 2003.

207. Valetta Convention. European Convention on the Protection of the Archaeological Heritage, Council of Europe, 1992. Available online at [conventions.coe.int/Treaty/en/Treaties/Html/143.htm](http://conventions.coe.int/Treaty/en/Treaties/Html/143.htm).
208. T. Valstad. The Oslo Method: a practical approach to register 3D properties. In *Proceedings FIG Working Week 2003*, Paris, France, April 2003.
209. E. Verbree, G. van Maren, F. Jansen, and M. Kraak. Interaction in virtual world views, linking 3D GIS with VR. *International Journal of Geographical Information Science*, 13(4):385–396, 1999.
210. E. Verbree and P.J.M. van Oosterom. The STIN method: 3D surface reconstruction by observation lines and Delaunay TENs. In *Proceedings of ISPRS Workshop on 3D-Reconstruction from Airborne Laserscanner and InSAR Data*, Dresden, Germany, October 2003.
211. T. Vijlbrief and P.J.M. van Oosterom. GEO++: an extensible GIS. In *Proceedings of 5th International Symposium on Spatial Data Handling*, Charleston, South Carolina, USA, August 1992.
212. G. Vosselman. Building reconstruction using planar faces in very high density height data. In *ISPRS Conference on Automatic Extraction of GIS Objects from Digital Imagery*, Munich, Germany, September, 1999, 87–92.
213. G. Vossen. *Data Models, Database Languages and Database Management Systems*. Addison-Wesley, Wokingham, U.K., 1991.
214. J. de Vries. 3D GIS en grootschalige toepassingen, de opslag en analyse in een geïntegreerde drie-dimensionale GIS (in Dutch). Technical Report M.Sc. thesis, Delft University of Technology, Delft, the Netherlands, 2001.
215. M.E. de Vries and J.E. Stoter. Accessing a 3D geo-DBMS using Web technology. In *Proceedings ISPRS Workshop on Spatial, Temporal and Multi-Dimensional Data Modelling and Analysis*, Quebec, Canada, October 2003.
216. M.E. de Vries and S. Zlatanova. Interoperability on the Web: the case of 3D geo-data. In *Proceedings IADIS International Conference e-Society*, Avila, Spain, July 2004.
217. X. Wang and A. Grün. A hybrid GIS for 3-D city models. *International Archives of Photogrammetry and Remote Sensing*, (4/3):1165–1172, 2000.
218. J. Warmer and A. Kleppe. *The Object Constraint Language: Precise Modeling with UML*. Addison-Wesley, Boston, Massachusetts, USA, 1998.
219. Web3D Consortium. X3D, Open Standards for Real-Time 3D Communication, 2004. Available online at [www.web3d.org/fs\\_specifications.htm](http://www.web3d.org/fs_specifications.htm).
220. J.D. Wees, R.W. Versseput, H.J. Simmelink, R.R.L. Allard, and H.J.M. Pagnier. Shared Earth system models for the Dutch subsurface. In *Proceedings GIN 2002, Geoinformatiedag Nederland 2002*, Ede, the Netherlands, February 2002.
221. M. Werner. Integrating GIS with inundation models for flood extent mapping. In *Proceedings UDMS 2002*, Prague, Czech Republic, October 2002.
222. M.S. Widodo. The needs for marine cadastre and supports of spatial data: infrastructures in marine environment—a case study. In *Proceedings FIG Working Week 2003*, Paris, France, April 2003.
223. M.F. Worboys. Object-oriented models of spatio-temporal information. In *Proceedings of GIS/LIS'92*, San José, California, USA, 1992, 825–834.
224. M.F. Worboys. *Geographical Information Systems: A Computing Perspective*. Taylor & Francis, London, 1995.
225. L. Yaolin. Categorical Database Generalization in GIS. Ph.D. thesis, Wageningen University, ITC, the Netherlands, 2002.
226. J.A. Zevenbergen. Are cadastres really serving the landowner. In *Proceedings UDMS 1999*, Venice, Italy, April 1999.

227. J.A. Zevenbergen. Systems of Land Registration, Aspects and Effects. Ph.D. thesis, TU Delft, the Netherlands, 2001.
228. A. Zipf and R. Leiner. Mobile GIS based flood warning and information system. In *Proceedings of Symposium on LBS and TeleCartography*, Vienna, Austria, January 2004.
229. S. Zlatanova. 3D GIS for Urban Development. Ph.D. thesis, Institute for Computer Graphics and Vision (ICGV), Graz University of Technology, Austria, ITC, the Netherlands, 2000.
230. S. Zlatanova. Augmented Reality Technology, Report for SURFnet. Technical Report GIST 18, Department of Geodesy, Delft University of Technology, Delft, the Netherlands, 2002.
231. S. Zlatanova and D. Prospero, Eds. *Large-Scale 3D Data Integration: Challenges and Opportunities*. Taylor & Francis, London, 2005.
232. S. Zlatanova, A. Rahman, and M. Pilouk. 3D GIS: current status and perspectives. In *Proceedings of ISPRS*, Ottawa, Canada, July 2002.
233. S. Zlatanova, A.A. Rahman, and W. Shi. Topology for 3D spatial objects. In *Proceedings International Symposium and Exhibition on Geoinformation 2002*, Kuala Lumpur, Malaysia, October 2002.
234. S. Zlatanova and E. Verbree. A 3D topological model for augmented reality. In *Proceedings Mobile MultiMedia Systems and Applications, MMSA*, Delft, the Netherlands, 2000.