



- Allen, J. F. (1983). Maintaining knowledge about temporal intervals. *Communications of ACM*, *26*, 832–843.
- Allen, J. F. (1984). Towards a general theory of action and time. *Artificial Intelligence*, 23, 123–154.
- Alt, H., Efrat, A., Rote, G., & Wenk, C. (2003). Matching planar maps. *Journal of Algorithms*, 49(2), 262–283.
- Amores, D., Tanin, E., & Vasardani, M. (2021). A proactive route planning approach to navigation errors. *International Journal of Geographical Information Science*, 35(6), 1094–1130.
- Andrienko, G., Andrienko, N., Demsar, U., Dransch, D., Dykes, J., Fabrikant, S. I., Jern, M., Kraak, M.-J., Schumann, H., & Tominski, C. (2010). Space, time, and visual analytics. *International Journal of Geographical Information Science*, 24(10), 1577–1600.
- Andrienko, N., & Andrienko, G. (2006). Exploratory analysis of spatial and temporal data: A systematic approach. Springer.
- Ardagna, C. A., Cremonini, M., Damiani, E., Capitani di Vimercati, S. D., & Samarati, P. (2007). Location privacy protection through obfuscation-based techniques. In Proc. IFIP Annual Conference on Data and Applications Security and Privacy (pp. 47–60). Springer.
- Ballas, D., Clarke, G., Franklin, R. S., & Newing, A. (2017). GIS and the social sciences: Theory and applications. Taylor & Francis.
- Baralis, E., Dalla Valle, A., Garza, P., Rossi, C., & Scullino, F. (2017). SQL versus NoSQL databases for geospatial applications. In *Proc. IEEE International Conference on Big Data* (pp. 3388–3397).
- Basiri, A., Lohan, E. S., de Silva, P. F., Peltola, P., Hill, C., & Moore, T. (2014). Overview of positioning technologies from fitness-to-purpose point of view. In Proc. International Conference on Localization and GNSS (ICL-GNSS) (pp. 1–7). IEEE.
- Bast, H., Delling, D., Goldberg, A., Müller-Hannemann, M., Pajor, T., Sanders, P., Wagner, D., & Werneck, R. F. (2016). Route planning in transportation networks. In *Algorithm Engineering* (pp. 19–80). Springer.
- Baumgart, B. (1975). A polyhedron representation for computer vision. In *Proc. AFIPS National Conference* 44 (pp. 589–596).
- Bearman, N., & Fisher, P. F. (2012). Using sound to represent spatial data in ArcGIS. Computers & Geosciences, 46, 157–163.
- Beckmann, N., Kriegel, H.-P., Schneider, R., & Seeger, B. (1990). The R*-tree: An efficient and robust access method for points and rectangles. In *Proc. ACM SIGMOD International Conference on Management of Data* (pp. 322–331).









- Belussi, A., Bertino, E., & Catania, B. (2002). Using spatial data access structures for filtering nearest neighbor queries. *Data & Knowledge Engineering*, 40(1), 1–31.
- Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In Proc. acm conference on fairness, accountability, and transparency (facct) (pp. 610–623). doi:10.1145/3442188.3445922
- Bertino, E., & Ooi, B. C. (1999). The indispensability of dispensable indexes. *IEEE Transactions on Knowledge and Data Engineering*, 11(1), 17–27.
- Bertino, E., Ooi, B. C., Sacks-Davis, R., Tan, K.-L., Zobel, J., Shidlovsky, B., & Catania, B. (1997). Temporal databases. In *Indexing Techniques for Advanced Database Systems* (pp. 113–149). Springer.
- Bertolotto, M., De Floriani, L., & Marzano, P. (1994). An efficient representation for pyramidal terrain models. In N. Pissinou & K. Makki (Eds.), Proc. Second ACM Workshop on Advances in Geographic Information Systems (pp. 129–136). National Institute for Standards and Technology.
- Bittner, T., Donnelly, M., & Smith, B. (2004). Endurants and perdurants in directly depicting ontologies. *AI Communications*, 17(4), 247–258.
- Bleisch, S., & Hollenstein, D. (2018). Exploratory geovisualizations for supporting the qualitative analysis and synthesis of place-related emotion data. *Cartographic Perspectives*, (91), 30–46.
- Brewer, C. A. (2016). Designing better maps: A guide for GIS users (2nd Edition). ESRI press.
- Briggs, C., Burfurd, I., Duckham, M., Guntarik, O., Kerr, D., McMillan, M., & San Martin Saldias, D. (2020). Bridging the geospatial gap: Data about space and indigenous knowledge of place. *Geography Compass*, 14(11), e12542.
- Brown, T., Mann, B., Ryder, N., Subbiah, M., Kaplan, J. D., Dhariwal, P.,
 Neelakantan, A., Shyam, P., Sastry, G., Askell, A., Henighan, T., ...
 McCandlish, S. (2020). Language models are few-shot learners. Advances in Neural Information Processing Systems, 33, 1877–1901.
- Buchin, K., Speckmann, B., & Verbeek, K. (2011). Flow map layout via spiral trees. *IEEE Transactions on Visualization and Computer Graphics*, 17(12), 2536–2544.
- Buchin, M., Driemel, A., Kreveld, M. v., & Sacristán Adinolfi, V. (2011).
 Segmenting trajectories: A framework and algorithms using spatiotem-poral criteria. *Journal of Spatial Information Science*, 3, 33–63.
- Burrough, P. A. (1981). Fractal dimension of landscapes and other environmental data. *Nature*, 294, 240–242.
- Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). *Principles of geo-graphical information systems* (3rd Edition). Oxford University Press.
- Cao, H., & Wachowicz, M. (2019). The design of an IoT-GIS platform for performing automated analytical tasks. Computers, Environment and Urban Systems, 74, 23–40.









- Carroll, S. R., Garba, I., Figueroa-Rodríguez, O. L., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R., et al. (2020). The CARE principles for Indigenous data governance. *Data Science Journal*, 3(1), 1–9.
- Cedeno Jimenez, J. R., Zhao, P., Mansourian, A., & Brovelli, M. A. (2022). Geospatial blockchain: Review of decentralized geospatial data sharing systems. In E. Parseliunas, A. Mansourian, P. Partsinevelos, & J. Suziedelyte-Visockiene (Eds.), Proc. 25th AGILE Conference on Geographic Information Science.
- Chazelle, B. (1991). Triangulating a simple polygon in linear time. *Discrete Computational Geometry*, 6, 485–524.
- Chrisman, N. R. (1978). Concepts of space as a guide to cartographic data structures. In G. Dutton (Ed.), *Proc. First International Advanced Study Symposium on Topological Data Structures for Geographic Information Systems* (pp. 1–19). Harvard Laboratory for Computer Graphics and Spatial Analysis.
- Chrisman, N. R. (2006). Exploring geographic information systems (2nd Edition). John Wiley.
- Claramunt, C., Parent, C., & Thériault, M. (1998). Design patterns for spatiotemporal processes. In *Data Mining and Reverse Engineering* (pp. 455– 475). Springer.
- Codd, E. F. (1970). A relational model for large shared data banks. *Communications of the ACM*, 13(6), 377–387.
- Çöltekin, A., Bleisch, S., Andrienko, G., & Dykes, J. (2017). Persistent challenges in geovisualization—A community perspective. *International Journal of Cartography*, 3(sup1), 115–139.
- Comber, L., & Brunsdon, C. (Eds.). (2020). Geographical data science and spatial data analysis: An introduction in R. SAGE.
- Connolly, T., & Begg, C. (2014). *Database systems: A practical approach to design, implementation, and management* (6th Edition). Addison-Wesley.
- Couclelis, H. (1992). People manipulate objects (but cultivate fields: Beyond the raster-vector debate in GIS. In A. U. Frank, I. Campari, & U. Formentini (Eds.), *Theories of Spatio-Temporal Reasoning in Geographic Space* (Vol. 639, pp. 65–77). Springer.
- Couclelis, H. (2003). The certainty of uncertainty: GIS and the limits of geographic knowledge. *Transactions in GIS*, 7(2), 165–175.
- Couclelis, H. (2010). Ontologies of geographic information. *International Journal of Geographical Information Science*, 24(12), 1785–1809.
- Coxeter, H. S. M. (1961). Introduction to geometry. Wiley.
- Crooks, A., Malleson, N., Manley, E., & Heppenstall, A. (Eds.). (2021). Agent-based modeling and geographical information systems: A practical primer. SAGE.
- Damiani, M. L. (2014). Location privacy models in mobile applications: Conceptual view and research directions. *Geoinformatica*, 18(4), 819–842.









- Date, C. J. (2015). SQL and relational theory: How to write accurate SQL code (3rd Edition). O'Reilly.
- Davis, M. (1997). Developing and using cases to teach practical ethics. *Teaching Philosophy*, 20(4), 353–385.
- De Floriani, L. (1989). A pyramidal data structure for triangle-based surface description. *IEEE Computer Graphics and Applications*, 9(2), 67–78.
- De Floriani, L., Magillo, P., & Puppo, E. (2000). Applications of computational geometry to geographic information systems. *Handbook of Computational Geometry*, 7, 333–388.
- De Floriani, L., Marzano, P., & Puppo, E. (1994a). Hierarchical terrain models: Survey and formalization. In *Proc. SAC'94* (pp. 323–327).
- De Floriani, L., Marzano, P., & Puppo, E. (1994b). Line-of-sight communication on terrain models. *International Journal of Geographical Information Systems*, 8(4), 329–342.
- De Floriani, L., & Puppo, E. (1992). A hierarchical triangle-based model for terrain description. In A. U. Frank, I. Campari, & U. Formentini (Eds.), *Theories of Spatio-Temporal Reasoning in Geographic Space* (Vol. 639, pp. 236–251). Springer.
- de Berg, M., Cheong, O., van Kreveld, M., & Overmars, M. (2008). *Computational geometry: Algorithms and applications* (3rd Edition). Springer.
- Delling, D., & Wagner, D. (2007). Landmark-based routing in dynamic graphs. In International Workshop on Experimental and Efficient Algorithms (pp. 52–65). Springer.
- Di Biase, D., MacEachren, A. M., Krygier, J., & Reeves, C. (1992). Animation and the role of map design in scientific visualization. *Cartography and Geographic Information Systems*, 23(4), 345–370.
- Dijkstra, E. W. (1959). A note on two problems in connexion with graphs. Numerische Mathematik, (1), 269–271.
- Dodge, M., & Kitchin, R. (2002). Atlas of cyberspace. Addison-Wesley.
- Dodge, S., Weibel, R., Ahearn, S. C., Buchin, M., & Miller, J. A. (2016). Analysis of movement data. *International Journal of Geographical Information Science*, 30(5), 825–834.
- Dodge, S., Weibel, R., & Lautenschütz, A.-K. (2008). Towards a taxonomy of movement patterns. *Information visualization*, 7(3–4), 240–252.
- Douglas, D. (1990). It makes me so CROSS. In D. J. Peuquet & D. F. Marble (Eds.), *Introductory Readings in Geographic Information Systems*. Taylor & Francis.
- Doyle, J., Bertolotto, M., & Wilson, D. (2008). A survey of multimodal interfaces for mobile mapping applications. In *Map-based Mobile Services* (pp. 146–167). Springer.
- Driemel, A. (2013). Realistic analysis for algorithmic problems on geographical data (Doctoral dissertation, Utrecht University).
- Du, J., Wang, S., Ye, X., Sinton, D. S., & Kemp, K. (2022). GIS-KG: Building a large-scale hierarchical knowledge graph for geographic information









- science. International Journal of Geographical Information Science, 36(5), 873–897.
- Duckham, M. (2013). Decentralized spatial computing: Foundations of geosensor networks. Springer.
- Duckham, M. (2015). GI expertise. Transactions in GIS, 19(4), 499-515.
- Duckham, M., Drummond, J. E., & Forrest, D. (2000). Assessment of error in digital vector data using fractal geometry. *International Journal of Geographical Information Science*, 14(1), 67–84.
- Duckham, M., Gabela, J., Kealy, A., Khan, M., Legg, J., Moran, B., Rumi, S. K., Salim, F. D., Sharmeen, S., Tao, Y., Trentelman, K., & Vasardani, M. (2022). Explainable spatiotemporal reasoning for geospatial intelligence applications. *Transactions in GIS*, 26(6), 2455–2479.
- Duckham, M., & Kulik, L. (2003). "Simplest" paths: Automated route selection for navigation. In *International Conference on Spatial Information Theory* (pp. 169–185). Springer.
- Duckham, M., & Kulik, L. (2005). A formal model of obfuscation and negotiation for location privacy. In *Proc. International Conference on Pervasive Computing* (pp. 152–170). Springer.
- Duckham, M., & Sharp, J. (2005). Uncertainty and geographic information: Computational and critical convergence. In P. F. Fisher & D. Unwin (Eds.), *Representing GIS* (Chap. 8, pp. 113–124). Wiley.
- Duckham, M., Sun, Q., & Worboys, M. F. (2023). GIS: A computing perspective (3rd Edition). CRC Press.
- Dwork, C. (2006). Differential privacy. In M. Bugliesi, B. Preneel, V. Sassone, & I. Wegener (Eds.), *Automata, Languages and Programming* (pp. 1–12). Springer.
- Dwyer, R. A. (1987). A fast divide-and-conquer algorithm for constructing Delaunay triangulations. *Algorithmica*, 2, 137–151.
- Edmonds, J. R. (1960). A combinatorial representation for oriented polyhedral surfaces (Master's thesis, University of Maryland).
- Eisner, W. R., Jelacic, J., Cuomo, C. J., Kim, C., Hinkel, K. M., & Del Alba, D. (2012). Producing an indigenous knowledge Web GIS for Arctic Alaska communities: Challenges, successes, and lessons learned. *Transactions in GIS*, 16(1), 17–37.
- Elmasri, R. A., & Navathe, S. B. N. (2016). Fundamentals of database systems (7th Edition). Pearson.
- Elwood, S. (2010). Thinking outside the box: Engaging critical geographic information systems theory, practice and politics in human geography. *Geography Compass*, 4(1), 45–60.
- Epp, S. S. (2018). Discrete mathematics with applications (4th Edition). Brooks/-Cole Cengage.
- Fabrikant, S. I., & Buttenfield, B. P. (2001). Formalizing spaces for information access. *Annals of the Association of American Geographers*, 91, 263–280.









- Fellows, M. R., Fomin, F. V., Lokshtanov, D., Rosamond, F., Saurabh, S., Szeider, S., & Thomassen, C. (2011). On the complexity of some colorful problems parameterized by treewidth. *Information and Computation*, 209(2), 143–153.
- Fish, C., Goldsberry, K. P., & Battersby, S. (2011). Change blindness in animated choropleth maps: An empirical study. *Cartography and Geographic Information Science*, 38(4), 350–362.
- Fox, J., Suryanata, K., Hershock, P., & Pramono, A. H. (2006). Mapping power: Ironic effects of spatial information technology. *Participatory learning and action*, 54(1), 98–105.
- Frank, A. U. (1992). Qualitative spatial reasoning about distances and directions in geographic space. *Journal of Visual Languages & Computing*, 3(4), 343–371.
- Freksa, C. (1992a). Temporal reasoning based on semi-intervals. *Artificial Intelligence*, 54(1–2), 199–227.
- Freksa, C. (1992b). Using orientation information for qualitative spatial reasoning. In *Proc. International Conference GIS* (Vol. 639, pp. 162–178).
- Freundschuh, S., & Egenhofer, M. J. (1997). Human conceptions of spaces: Implications for GIS. *Transactions in GIS*, 2(4), 361–375.
- Gahegan, M. N. (1989). An efficient use of quadtrees in a geographical information system. *International Journal of Geographical Information System*, 3(3), 201–214.
- Galton, A. (2012). States, processes and events, and the ontology of causal relations. In *Formal Ontology in Information Systems* (pp. 279–292). IOS Press.
- Ganesan, D., Cerpa, A., Ye, W., Yu, Y., Zhao, J., & Estrin, D. (2004). Networking issues in wireless sensor networks. *Journal of Parallel and Distributed Computing*, 64(7), 799–814.
- Garcia-Molina, H., Ullman, J., & Widom, J. (2013). *Database systems: The complete book* (New International Edition). Pearson.
- Gärdenfors, P., & Rott, H. (1995). Belief revision. In D. M. Gabbay, C. J. Hogger, & J. A. Robinson (Eds.), Handbook of Logic in Artificial Intelligence and Logic Programming (Vol. 4, pp. 35–132). Oxford University Press.
- Gardiner, G., McDonald, J., Byrne, A., & Thorpe, K. (2011). Respect, trust and engagement: Creating an Australian indigenous data archive. Collection Building, 30(4), 148–152.
- Garey, M. R., Johnson, D. S., Preparata, F. P., & Tarjan, R. E. (1978). Triangulating a simple polygon. *Information Processing Letters*, 7, 175–179.
- Gatrell, A. C. (1991). Concepts of space and geographical data. In D. J. Maguire, M. F. Goodchild, & D. W. Rhind (Eds.), Geographical Information Systems (Vol. 1, pp. 119–134). Longman.
- Gaver, W. W. (1986). Auditory icons: Using sound in computer interfaces. *Human-Computer Interaction*, 2, 167–177.
- Giblin, P. J. (1977). Graphs, surfaces, and homology: An introduction to algebraic topology. Chapman & Hall.









- Golledge, R. G., Rice, M. T., & Jacobson, R. D. (2006). Multimodal interfaces for representing and accessing geospatial information. In *Frontiers of geographic information technology* (pp. 181–208). Springer.
- Goodchild, M. F. (1988). Lakes on fractal surfaces: A null hypothesis for lake rich landscapes. *Mathematical Geology*, 20(6), 615–629.
- Goodchild, M. F. (2004). The validity and usefulness of laws in geographic information science and geography. *Annals of the Association of American Geographers*, 94(2), 300–303.
- Goodwin, S., Dykes, J., Slingsby, A., & Turkay, C. (2015). Visualizing multiple variables across scale and geography. *IEEE Transactions on Visualization and Computer Graphics*, 22(1), 599–608.
- Goyal, R., & Egenhofer, M. J. (2001). Similarity of cardinal directions. In C. Jensen, M. Schneider, B. Seeger, & V. Tsotras (Eds.), Proc. International Symposium on Advances in Spatial and Temporal Databases (SSTD) (pp. 36– 58). Springer.
- Grenon, P., & Smith, B. (2004). SNAP and SPAN: Towards dynamic spatial ontology. *Spatial Cognition and Computation*, 4(1), 69–104.
- Griffin, A. L. (2017). Cartography, visual perception, and cognitive psychology. In *The Routledge Handbook of Mapping and Cartography* (pp. 44–54). Routledge.
- Guibas, L., & Stolfi, J. (1985). Primitives for the manipulation of general subdivisions and the computation of Voronoi diagrams. *ACM Transactions on Graphics*, 4(2), 74–123.
- Hacking, I. (1999). The social construction of what? Harvard University Press.
- Hage, W. R. v., & Ceolin, D. (2013). The simple event model. In *Situation awareness with systems of systems* (pp. 149–169). Springer.
- Haque, S., Kulik, L., & Klippel, A. (2006). Algorithms for reliable navigation and wayfinding. In *International Conference on Spatial Cognition* (pp. 308–326). Springer.
- Harley, J. B. (1988). Maps, knowledge, and power. In D. Cosgrove & S. Daniels (Eds.), *The iconography of landscape* (pp. 277–312). Cambridge University Press.
- Harrower, M., & Brewer, C. A. (2003). ColorBrewer.org: An online tool for selecting color schemes for maps. *The Cartographic Journal*, 40(1), 27–37.
- Hartsfield, N., & Ringel, G. (2003). Pearls in graph theory: A comprehensive introduction. Dover.
- Harvey, F., Kwan, M.-P., & Pavlovskaya, M. (2005). Introduction: Critical GIS. *Cartographica*, 40(4), 1–4.
- Henle, M. (1979). A combinatorial introduction to topology. Freeman.
- Heppenstall, A. J., Crooks, A. T., See, L. M., & Batty, M. (Eds.). (2012). Agent-based models of geographical systems. Springer.
- Heywood, I., Cornelius, S., & Carver, S. (2011). An introduction to geographical information systems (4th Edition). Pearson.
- Hightower, J., & Boriello, G. (2001). Location systems for ubiquitous computing. *IEEE Computer*, 34(8), 57–66.









- Holroyd, F., & Bell, S. B. (1992). Raster GIS: Models of raster encoding. *Computers & Geosciences*, 18(4), 419–426.
- Hornsby, K., & Egenhofer, M. J. (2000). Identity-based change: A foundation for spatio-temporal knowledge representation. *International Journal of Geographical Information Science*, 14(3), 207–224.
- Hornsby, K., & Egenhofer, M. J. (2002). Modeling moving objects over multiple granularities. *Annals of Mathematics and Artificial Intelligence*, 36(1), 177–194.
- Kendall, E., & McGuinness, D. (2019). Ontology engineering. Morgan & Claypool.
- Krygier, J. (1994). Sound and geographic visualization. In A. M. MacEachren & D. R. F. Taylor (Eds.), *Visualization in Modern Cartography* (pp. 1–12). Pergamon.
- Kuipers, B. (1978). Modeling spatial knowledge. Cognitive Science, 2, 129–153.
 Kwan, M.-P. (2001). Cyberspatial cognition and individual access to information: The behavioral foundation of cybergeography. Environment and Planning B: Planning and Design, 28(1), 21–37.
- Lam, N. S.-N., & De Cola, L. (1993). Fractals in geography. Prentice-Hall.
- Langran, G. (1992). Time in geographic information systems. Taylor & Francis.
- Latour, B. (1993). We have never been modern. Harvard University Press.
- Lee, D.-T., & Schachter, B. J. (1980). Two algorithms for constructing the Delaunay triangulation. *International Journal of Computer and Information Sciences*, 9(3), 219–242.
- Lennes, N. J. (1911). Theorems on the simple finite polygon and polyhedron. *American Journal of Mathematics*, 33, 37–62.
- Li, S., & Liu, W. (2010). Topological relations between convex regions. In Proc. 24th AAAI Conference on Artificial Intelligence.
- Li, S., Dragicevic, S., Castro, F. A., Sester, M., Winter, S., Coltekin, A., Pettit, C., Jiang, B., Haworth, J., Stein, A., & Cheng, T. (2016). Geospatial big data handling theory and methods: A review and research challenges. ISPRS Journal of Photogrammetry and Remote Sensing, 115, 119–133.
- Li, W. (2020). GeoAI: Where machine learning and big data converge in GIScience. *Journal of Spatial Information Science*, (20), 71–77.
- Li, W., & Arundel, S. T. (2022). GeoAI and the future of spatial analytics. In B. Li, X. Shi, A.-X. Zhu, C. Wang, & H. Lin (Eds.), *New thinking in GIScience* (pp. 151–158). Springer.
- Li, Y., Ouyang, S., & Zhang, Y. (2022). Combining deep learning and ontology reasoning for remote sensing image semantic segmentation. *Knowledge-Based Systems*, 243, 108469.
- Li, Y., Zhao, Q., & Zhong, C. (2022). Gis and urban data science. *Annals of GIS*, 28(2), 89–92.
- Lipschutz, S., & Lipson, M. (2021). Schaum's outline of discrete mathematics (4th Edition). McGraw-Hill.
- Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (Eds.). (2005). Geographical information systems (2nd Edition). John Wiley & Sons.







- Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2015). *Geographic information systems and science* (4th Edition). John Wiley & Sons.
- MacEachren, A. M. (1994a). Time as a cartographic variable. In H. M. Hearn-shaw & D. J. Unwin (Eds.), Visualization in Geographical Information Systems (Chap. 13, pp. 115–130). John Wiley.
- MacEachren, A. M. (1994b). Visualization in modern cartography: Setting the agenda. In A. M. MacEachren & D. Taylor (Eds.), *Visualization in Modern Cartography* (pp. 1–12). Pergamon.
- MacEachren, A. M. (1995). How maps work. Guilford Press.
- Maguire, D. J., Goodchild, M. F., & Rhind, D. W. (Eds.). (1991). *Geographical information systems* (1st Edition). Longman.
- Mai, G., Janowicz, K., Yan, B., & Scheider, S. (2019). Deeply integrating linked data with geographic information systems. *Transactions in GIS*, 23(3), 579–600.
- Mai, G., Janowicz, K., Zhu, R., Cai, L., & Lao, N. (2021). Geographic question answering: Challenges, uniqueness, classification, and future directions. In P. Partsinevelos, P. Kyriakidis, & M. Kavouras (Eds.), Proc. 24th AGILE Conference on Geographic Information Science.
- Mandelbrot, B. B. (1982). The fractal geometry of nature. Freeman.
- Mao, H., Hu, Y., Kar, B., Gao, S., & McKenzie, G. (2017). GeoAI 2017 Workshop Report: The 1st ACM SIGSPATIAL International Workshop on GeoAI. SIGSPATIAL Special, 9(3), 25.
- Mark, D. M., Smith, B., & Tversky, B. (1999). Ontology and geographic objects: An empirical study of cognitive categorization. In *International Conference on Spatial Information Theory (COSIT)* (pp. 283–298). Springer.
- Miller, C. L., & Laflamme, R. A. (1958). The digital terrain model—theory and application. *Photogrammetric Engineering*, 24(3), 433–442.
- Mitasova, H., Mitas, L., & Harmon, R. S. (2005). Simultaneous spline approximation and topographic analysis for LIDAR elevation data in open-source GIS. *IEEE Geoscience and Remote Sensing Letters*, 2(4), 375–379
- Monmonier, M. (1996). *How to lie with maps* (2nd Edition). University of Chicago Press.
- Montello, D. R. (1993). Scale and multiple psychologies of space. In A. U. Frank & I. Campari (Eds.), *Spatial Information Theory: A Theoretical Basis for GIS* (Vol. 716, pp. 312–321). Springer.
- Mourelatos, A. P. D. (1978). Events, processes, and states. *Linguistics and Philosophy*, 2, 415–434.
- Munzner, T. (2014). Visualization analysis and design. CRC Press.
- Nittel, S. (2009). A survey of geosensor networks: Advances in dynamic environmental monitoring. *Sensors*, 9(7), 5664–5678.
- Nittel, S., Stefanidis, A., Cruz, I., Egenhofer, M. J., Goldin, D., Howard, A., Labrinidis, A., Madden, S., Voisard, A., & Worboys, M. (2004). Report from the first workshop on geo sensor networks. SIGMOD Record, 33(1), 141–144.









- Norman, D. A. (1988). The design of everyday things. Doubleday.
- Noy, N. F., & McGuinness, D. L. (2001). Ontology development 101: A guide to creating your first ontology (tech. rep. No. KSL-01-05). Stanford Knowledge Systems Laboratory.
- Nuhn, E., & Timpf, S. (2022). Landmark weights—an alternative to spatial distances in shortest route algorithms. *Spatial Cognition & Computation*, 1–27
- Null, L., & Lobur, J. (2018). The essentials of computer organization and architecture (5th Edition). Jones & Bartlett Learning.
- Nyerges, T. L., Couclelis, H., & McMaster, R. (2011). *The SAGE handbook of GIS and society*. SAGE Publications.
- O'Rourke, J. (1997). Computational geometry in C (2nd Edition). Cambridge University Press.
- O'Sullivan, D., & Unwin, D. (2010). *Geographic information analysis* (2nd Edition). John Wiley & Sons.
- Ohori, K. A., Ledoux, H., & Stoter, J. (2015). An evaluation and classification of nD topological data structures for the representation of objects in a higher-dimensional GIS. *International Journal of Geographical Information Science*, 29(5), 825–849.
- Ohya, T., Iri, M., & Murota, K. (1984). A fast Voronoi-diagram algorithm with quaternary tree bucketing. *Information Processing Letters*, 18(4), 227–231.
- Orellana, D., & Renso, C. (2010). Developing an interactions ontology for characterising pedestrian movement behaviour. In M. Wachowicz (Ed.), Movement-aware applications for sustainable mobility: Technologies and approaches (pp. 62–86). IGI Global.
- Oviatt, S. (1999). Mutual disambiguation of recognition errors in a multimodel architecture. In *Proc. SIGCHI conference on Human Factors in Computing Systems* (pp. 576–583).
- Oviatt, S., Coulston, R., & Lunsford, R. (2004). When do we interact multi-modally? cognitive load and multimodal communication patterns. In *Proc. 6th international conference on Multimodal interfaces* (pp. 129–136).
- Parent, C., Spaccapietra, S., Renso, C., Andrienko, G., Andrienko, N., Bogorny, V., Damiani, M. L., Gkoulalas-Divanis, A., Macedo, J., Pelekis, N., et al. (2013). Semantic trajectories modeling and analysis. ACM Computing Surveys, 45(4), 1–32.
- Peterson, G. (2020). GIS cartography: A guide to effective map design. CRC Press. Peuquet, D. J. (1984). A conceptual framework and comparison of spatial data
- 'euquet, D. J. (1984). A conceptual framework and comparison of spatial data models. Cartographica, 21(4), 66–113.
- Peuquet, D. J. (1994). It's about time: A conceptual framework for the representation of temporal dynamics in geographic information systems. Annals of the Association of American Geographers, 84(3), 441–461.
- Preece, J., Rogers, Y., & Sharp, H. (2015). *Interaction design: Beyond human-computer interaction* (4th Edition). John Wiley & Sons.







- Preparata, F. P., & Shamos, M. I. (1985). Computational geometry: An introduction. Springer.
- Price, R., & Shanks, G. (2005). A semiotic information quality framework: Development and comparative analysis. *Journal of Information Technology*, 20(2), 88–102.
- Quinlan, J. (1986). Induction of decision trees. Machine Learning, 1, 81–106.
- Reid, G., & Sieber, R. E. (2020). Learning from critiques of GIS for assessing the geoweb and Indigenous knowledges. *GeoJournal*, 1–19.
- Reid, G., Sieber, R. E., & Blackned, S. (2020). Visions of time in geospatial ontologies from Indigenous peoples: A case study with the Eastern Cree in Northern Quebec. *International Journal of Geographical Information* Science, 34(12), 2335–2360.
- Renolen, A. (2000). Modelling the real world: Conceptual modelling in spatiotemporal information system design. *Transactions in GIS*, 4(1), 23–42
- Rey, S. J., & Franklin, R. S. (Eds.). (2022). Handbook of spatial analysis in the social sciences. Edward Elgar.
- Rigaux, P., Scholl, M. O., & Voisard, A. (2002). Spatial databases: With application to GIS. Morgan Kaufmann.
- Roberts, J. C., Headleand, C., & Ritsos, P. D. (2015). Sketching designs using the five design-sheet methodology. *IEEE Transactions on Visualization and Computer Graphics*, 22(1), 419–428.
- Romero, A., Gatta, C., & Camps-Valls, G. (2016). Unsupervised deep feature extraction for remote sensing image classification. *IEEE Transactions on Geoscience and Remote Sensing*, 54(3), 1349–1362. doi:10.1109/TGRS.2015. 2478379
- Samet, H. (1990). Applications of spatial data structures: Computer graphics, image processing, and GIS. Addison-Wesley.
- Samet, H. (2006). Foundations of multidimensional and metric data structures. Morgan Kaufmann.
- Saoub, K. R. (2021). Graph theory: An introduction to proofs, algorithms, and applications. CRC Press.
- Schlieder, C. (1995). Reasoning about ordering. In *Proc. International Conference on Spatial Information Theory (COSIT)* (Vol. 988, pp. 341–349).
- Schuurman, N. (1999). An interview with Michael Goodchild, January 6, 1998, Santa Barbara, California. *Environment and Planning D: Society and Space*, 17(1), 3–15.
- Schuurman, N. (2000). *Critical GIS: Theorizing an emerging science* (Doctoral dissertation, University of British Columbia).
- Schuurman, N. (2003). GIS: A short introduction. Blackwell.
- Schuurman, N. (2009). An interview with Michael Goodchild: GIScience and social reordering in the new millennium. *The Information Society*, 25(5), 360–363.
- Schuurman, N., & Pratt, G. (2002). Care of the subject: Feminism and critiques of GIS. *Gender, Place, and Culture, 9*(3), 291–299.









- Siabato, W., Claramunt, C., Ilarri, S., & Manso-Callejo, M. Á. (2018). A survey of modeling trends in temporal GIS. *ACM Computing Surveys*, 51(2), 1–41.
- Sieber, R. E., Robinson, P. J., Johnson, P. A., & Corbett, J. M. (2016). Doing public participation on the geospatial web. *Annals of the American Association of Geographers*, 106(5), 1030–1046.
- Skupin, A., & Fabrikant, S. I. (2003). Spatialization methods: A cartographic research agenda for non-geographic information visualization. *Cartography and Geographic Information Science*, 30(2), 99–119.
- Smith, B. (1995). On drawing lines on a map. In A. U. Frank & W. Kuhn (Eds.), *Spatial Information Theory: A Theoretical Basis for GIS* (Vol. 988), Springer.
- Smith, B., & Varzi, A. C. (2000). Fiat and bona fide boundaries. *Philosophy and Phenomenological Research*, 60(2), 401–420.
- Smith, T., Peuquet, D. J., Menon, S., & Agarwal, P. (1987). KBGIS-II: A knowledge-based geographical information system. *International Journal of Geographical Information Systems*, 1(2), 149–172.
- Smithson, M. (2012). *Ignorance and uncertainty: Emerging paradigms*. Springer New York.
- Snipp, C. M. (2016). What does data sovereignty imply: What does it look like? In T. Kukutai & J. Taylor (Eds.), *Indigenous data sovereignty: Toward an agenda* (pp. 39–56). ANU Press.
- Sobel, D. (1995). Longitude: The true story of a lone genius who solved the greatest scientific problem of his time. Bloomsbury.
- Sperber, D., & Wilson, D. (1995). *Relevance: Communication and cognition* (2nd Edition). Blackwell.
- Stevens, S. S. (1946). On the theory of scales and measurement. *Science*, *103*, 677–680.
- Sullivan, D. (2015). NoSQL for mere mortals. Addison-Wesley Professional.
- Sun, Q., Macleod, T., Both, A., Hurley, J., Butt, A., & Amati, M. (2021). A human-centred assessment framework to prioritise heat mitigation efforts for active travel at city scale. Science of The Total Environment, 763, 143033.
- Szewczyk, R., Osterweil, E., Polastre, J., Hamilton, M., Mainwaring, A., & Estrin, D. (2004). Habitat monitoring with sensor networks. *Communications of the ACM*, 47(6), 34–40.
- Tanenbaum, A. S. (2013). Structured computer organization (6th Edition). Pearson.
- Tarjan, R. E., & Wyk, C. J. V. (1988). An *O(n log log n)*-time algorithm for triangulating a simple polygon. *SIAM Journal of Computing*, *17*, 143–178.
- Tauli-Corpuz, V. (2016). Preface. In T. Kukutai & J. Taylor (Eds.), *Indigenous data sovereignty: Toward an agenda* (pp. xxi–xxiii). ANU Press.
- Timpf, S. (2002). Ontologies of wayfinding: A traveler's perspective. *Networks and Spatial Economics*, 2(1), 9–33.









- Tobler, W. (1970). A computer movie simulating urban growth in the Detroit region. *Economic Geography*, 46(2), 234–240.
- Tobler, W. (1993). Non-isotropic geographic modeling (tech. rep. No. 93-1). National Center for Geographic Information and Analysis. In Three Presentations on Geographical Analysis and Modeling.
- Tomlin, C. D. (1983). A map algebra. In *Proc. Harvard Computer Graphics Conference*.
- Tripathi, N., & Bhattarya, S. (2004). Integrating indigenous knowledge and GIS for participatory natural resource management: State-of-the-practice. *The Electronic Journal of Information Systems in Developing Countries*, 17(1), 1–13.
- Tufte, E. R. (1990). Envisioning information. Graphics Press.
- Tufte, E. R. (2001). *The visual display of quantitative information* (2nd Edition). Graphics Press.
- Turing, A. M. (1950). Computing Machinery and Intelligence. *Mind*, 59(236), 433–460.
- Tversky, B., Morrison, J. B., & Betrancourt, M. (2002). Animation: Can it facilitate? *International Journal of Human-Computer Studies*, 57(4), 247–262.
- Van de Weghe, N., Cohn, A., Tré, G., & De Maeyer, P. (2006). A qualitative trajectory calculus as a basis for representing moving objects in geographical information systems. Control and Cybernetics, 35, 97–119.
- Van Kreveld, M., & Speckmann, B. (2007). On rectangular cartograms. Computational Geometry, 37(3), 175–187.
- Veland, S., Lynch, A., Bischoff-Mattson, Z., Joachim, L., & Johnson, N. (2014).
 All strings attached: Negotiating relationships of geographic information science. *Geographical Research*, 52(3), 296–308.
- Vilain, M. B., & Kautz, H. A. (1986). Constraint propagation algorithms for temporal reasoning. In Proc. AAAI (pp. 377–382).
- Wang, J., Duckham, M., & Worboys, M. (2016). A framework for models of movement in geographic space. *International Journal of Geographical Information Science*, 30(5), 970–992.
- Want, R., Hopper, A., Falcao, V., & Gibbons, J. (1992). The Active Badge location system. *ACM Transactions on Information Systems*, 10(1), 91–102.
- Ward, M. O., Grinstein, G., & Keim, D. (2015). Interactive data visualization: Foundations, techniques, and applications (2nd Edition). John Wiley & Sons.
- Westin, A. F. (1967). Privacy and freedom. Atheneum.
- Wilensky, U., & Rand, W. (2015). An introduction to agent-based modeling: Modeling natural, social, and engineered complex systems with NetLogo. MIT Press.
- Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M.,
 Baak, A., Blomberg, N., Boiten, J.-W., da Silva Santos, L. B., Bourne,
 P. E., et al. (2016). The FAIR guiding principles for scientific data
 management and stewardship. Scientific Data, 3(1), 1–9.









- Wilson, M. (2016). *Critical GIS* (N. Clifford, M. Cope, T. Gillespie, & S. French, Eds.). SAGE.
- Wolter, D., & Lee, J. H. (2010). Qualitative reasoning with directional relations. *Artificial Intelligence*, 174(18), 1498–1507.
- Wood, J. D. (1996). The geomorphological characterisation of digital elevation models (Doctoral dissertation, University of Leicester).
- Wood, Z., & Galton, A. (2009). A taxonomy of collective phenomena. *Applied Ontology*, 4(3–4), 267–292.
- Worboys, M. F., & Clementini, E. (2001). Integration of imperfect spatial information. *Journal of Visual Languages & Computing*, 12(1), 61–80.
- Yuan, M. (1999). Use of a three-domain representation to enhance GIS support for complex spatiotemporal queries. *Transactions in GIS*, 3(2), 137–159.
- Zhang, T. Y., & Suen, C. Y. (1984). A fast parallel algorithm for thinning digital patterns. *Communications of the ACM*, 27(3), 236–239.
- Zhang, X., Song, W., & Liu, L. (2014). An implementation approach to store GIS spatial data on NoSQL database. In Proc. 22nd International Conference on Geoinformatics (pp. 1–5).
- Zhao, F., & Guibas, L. (2004). Wireless sensor networks: An information processing approach. Elsevier/Morgan-Kaufmann.
- Zimmermann, K., & Freksa, C. (1996). Qualitative spatial reasoning using orientation, distance, and path knowledge. *Applied Intelligence*, 6(1), 49–58
- Zlatanova, S., & Gruber, M. (1998). 3D urban GIS on the Web: Data structuring and visualization. In *ISPRS Archives* (Vol. 32, pp. 691–699).
- Zlatanova, S., Rahman, A. A., & Shi, W. (2004). Topological models and frameworks for 3D spatial objects. *Computers & Geosciences*, 30(4), 419–428
- Zubin, D. (1989). Natural language understanding and reference frames. In
 D. Mark, A. Frank, M. J. Egenhofer, S. Freundschuh, M. McGranaghan,
 & R. M. White (Eds.), Languages of Spatial Relations: Initiative 2 Specialist
 Meeting Report (pp. 13–16). National Center for Geographic Information and Analysis.



