

UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO INSTITUTO DE GEOGRAFIA

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GIS A Computing Perspective, By Matt Duckham, Qian (Chayn)

Sun, Michael F. Worboys Copyright 2024, ISBN 9780429168093492 Pages 298 Color & 60 B/W Illustrations, Published July 30, 2023 by CRC Press, **3rd. Edition, \$140.00**

DESCRIPTION

Following two successful editions, the third edition of GIS: A Computing Perspective has been completely revised and updated, with extensive new content reflecting the significant progress that has been made in the realm of GIS within the last 20 years. Major new topics covered for the first time in this edition include: graph databases and graph query languages, ontology engineering and qualitative spatial reasoning, geosensor networks and GeoAI, decentralized computing and online algorithms, and critical GIS and data sovereignty.

Features

- Includes an entirely new chapter on AI and GIS, including ontologies and the Semantic Web, knowledge representation (KR) and spatial reasoning, machine learning and spatial analysis, and neural networks and deep learning
- Presents new material reflecting the advances made in cloud computing, stream computing, and sensor networks, as well as extensively revised and updated content on cartography, visualization, and interaction design
- Connects the technology to the social aspects and implications of GIS, including privacy and fair information practices, FATE (fairness, accountability, transparency, and ethics), and codes of conduct for responsible use of GIS

- Integrates the necessary background to foundational areas, such as databases and data structures, algorithms and indexes, and system architecture and AI, provided in context so readers new to those topics can still understand the concepts being discussed
- Incorporates over 20 carefully explained spatial algorithms; over 60 inset boxes with in-depth material that enriches the central topics; and more than 300 color figures to support the reader in mastering key concepts
- Welcomes a new coauthor, Qian (Chayn) Sun, to the third edition, who brings her expertise in topics such as web mapping, cloud computing, critical geography, and machine learning with big spatial data

Intended for anyone interested in understanding GIS, especially students taking upper-level undergraduate and graduate courses in computer science and geography, as well as acad