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Nota di contenuto	Forward: Introduction: 1. CyberGIS for Transforming Geospatial Discovery and Innovation: Shaowen Wang and Michael F. Goodchild -- Applications and Science Drivers: 2. Coupling Traffic and Gas Dispersion Simulation for Atmospheric Pollution Estimation: Guido Cervone et all.-3. CyberGIS for Analyzing Urban Data : James Cheshire et all -- 4. Designing Adaptable Spatial Cyberinfrastructure for Urban eResearch : Martin Tomko et all -- 5. Mapping Spatial Information Landscape in Cyberspace with Social Media : Jiue-An Yang et all -- 6. Integrating GIScience Application through Mashup: Chaowei Yang Pinde Fu et all -- Science and Technology Frontiers: 7. Crayons: Empowering CyberGIS by Employing Cloud Infrastructure: Dinesh Agarwal et all -- 8. Enabling Spatial Big Data via CyberGIS: Challenges and Opportunities: Michael R. Evans et all -- 9. High-Performance Small-Scale Raster Map Projection Empowered by Cyberinfrastructure: Michael P. Finn Yan Liu et all -- 10. A Smart Service-Oriented CyberGIS Framework for Solving Data-Intensive Geospatial Problems: Wenwen Li et all -- 11. An Online Game Framework for Multi-User Spatial Agent Simulation: David Massey et all -- 12. Georeferenced Social Multimedia as Volunteered Geographic Information: Shawn Newsam and Daniel Leung -- Social Dimensions: 13.GeoDeliberative Web: Scaling Up Deliberative Civic Engagement Through Spatial Cyberinfrastructure: Guoray Cai -- 14. Towards a Community "Playground:" Connecting CyberGIS with its Communities: Dawn J. Wright Victoria Kouyoumijan, and Steve Kopp --

15. CyberGIS Considerations for Structured Participation Methods in Collaborative Problem Solving: Mary Roderick Timothy Nyerges, and Michalis Avraam -- An Epilogue Shaowen Wang.

Sommario/riassunto

This book elucidates how cyberGIS (that is, new-generation geographic information science and systems (GIS) based on advanced computing and cyberinfrastructure) transforms computation- and data-intensive geospatial discovery and innovation. It comprehensively addresses opportunities and challenges, roadmaps for research and development, and major progress, trends, and impacts of cyberGIS in the era of big data. The book serves as an authoritative source of information to fill the void of introducing this exciting and growing field. By providing a set of representative applications and science drivers of cyberGIS, this book demonstrates how cyberGIS has been advanced to enable cutting-edge scientific research and innovative geospatial application development. Such cyberGIS advances are contextualized as diverse but interrelated science and technology frontiers. The book also emphasizes several important social dimensions of cyberGIS such as for empowering deliberative civic engagement and enabling collaborative problem solving through structured participation. In sum, this book will be a great resource to students, academics, and geospatial professionals for learning cutting-edge cyberGIS, geospatial data science, high-performance computing, and related applications and sciences.