Special Issue Reprint

Spatial Big Data, BIM and advanced GIS for Smart Transformation: City, Infrastructure and Construction

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This book covers a range of topics including selective technologies and algorithms that can potentially contribute to developing an intelligent environment and smarter cities. While the connectivity and efficiency of smart cities is important, the analysis of the impact of construction development and large projects in the city is crucial to decision and policy makers, before the project is approved. This book also presents an agenda for future investigations to address the need for advanced tools such as mobile scanners, Geospatial Artificial Intelligence, Unmanned Aerial Vehicles, Geospatial Augmented Reality apps, Light Detection, and Ranging in smart cities. Some of selected specific tools presented in this book are as a simulator for improving the smart parking practices by modelling drivers with activity plans, a bike optimization algorithm to increase the efficiency of bike stations, an agent-based model simulation of human mobility with the use of mobile phone datasets. In addition, this book describes the use of numerical methods to match the network demand and supply of bicycles, investigate the distribution of railways using different indicators, presents a novel algorithm of direction-aware continuous moving K-nearest neighbor queries in road networks, and presents an efficient staged evacuation planning algorithm for multi-exit buildings.

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