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Nota di contenuto	Section 1: Foundations of Large Language Models in Sustainable Urban Development -- Chapter 1 Impact of Large Language Models (LLMs) and Artificial Intelligence (AI) on renewable and sustainable energy -- Chapter 2 Harnessing artificial neural networks and large language models for enhanced urban energy planning: Improving annual performance of grid-connected high-power photovoltaic plants -- Chapter 3 Large language models for energy forecasting and prediction in renewable energy systems -- Section 2: Applications in Renewable Energy and Environmental Sustainability -- Chapter 4 Environmental monitoring and sustainability: LLMs for climate-responsive urban design -- Chapter 5 Assessing toxic chemical contamination in drinking water: Employing large language models to understand urban

health impacts for sustainable development -- Chapter 6 Assessing reliability of large language model outputs on drinking water quality data from smart water distribution system -- Section 3: Urban Planning and Green Spaces -- Chapter 7 Transforming urban green spaces: The impact of large language models on smart and sustainable urban plantations -- Chapter 8 How large language models transform urban planning and shape tomorrow's cities? -- Chapter 9 Chatting with your zoning code: Leveraging LLMs for real estate development -- Section 4: Smart and Sustainable Construction -- Chapter 10 Integration of Large Language Model (LLM) and Building information modeling (BIM) for enhanced construction project lifecycle management: A review -- Chapter 11 Large language models and artificial intelligence in the construction industry: Applications, opportunities, challenges, and ethical implications -- Chapter 12 Large language models for sustainable building design: Enhancing energy efficiency and material optimization -- Section 5: Data-Driven Decision Making in Urban Development -- Chapter 13 Smart and sustainable urban development: The pivotal role of large language models in data-driven decision making -- Chapter 14 Integrating biological frameworks into smart urban scaling through large language models -- Chapter 15 Investigating the relationship between land surface temperature and land use land cover change using spectral indices and LLM in Kosi river basin of Uttarakhand Himalaya -- Chapter 16 Accelerating road maintenance and repair processes: YOLO and Large Language Model for detection and classification of defects in flexible pavements.

Sommario/riassunto	With rapid urbanization defining the 21st Century, cities face mounting challenges in achieving sustainability, equity, and functionality. This book explores how innovative technologies such as Artificial Intelligence (AI) and Large Language Models (LLMs) can transform urban development by offering intelligent, data-driven solutions. LLMs go beyond automation, acting as co-creators in addressing environmental sustainability, resource management, and equitable development. By analyzing regulations, best practices, and real-time data on phenomena such as air pollution and traffic, these models empower urban planners to design smarter, more sustainable cities while fostering collaboration across disciplines. Divided into five sections, the book explores the diverse applications of LLMs, from optimizing renewable energy systems and enhancing urban planning to revolutionizing construction practices and improving resource efficiency. It highlights case studies on integrating AI with smart infrastructure, ecological balance, and disaster resilience. While underscoring their transformative potential, the book also examines ethical considerations such as bias, privacy, and environmental impact. More than a collection of research, this work is a call to action for urban planners, data scientists, policymakers, and researchers to harness AI responsibly in building greener, more equitable urban futures.