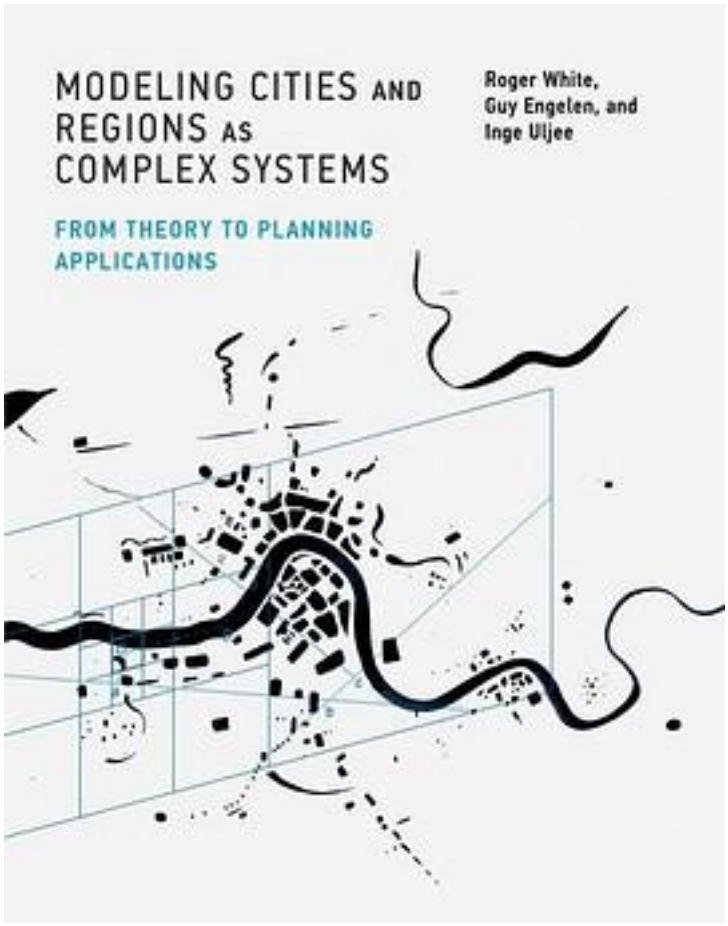
Modeling Cities and Regions as Complex Systems



Modeling Cities and Regions as Complex Systems_下载链接1_

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The theory and practice of modeling cities and regions as complex, self-organizing systems, presenting widely used cellular automata-based models, theoretical discussions, and applications.

Cities and regions grow (or occasionally decline), and continuously transform themselves as they do so. This book describes the theory and practice of modeling the spatial dynamics of urban growth and transformation. As cities are complex, adaptive, self-organizing systems, the most appropriate modeling framework is one based on the theory of self-organizing systems—an approach already used in such fields as physics and ecology. The book presents a series of models, most of them developed using cellular automata (CA), which are inherently spatial and computationally efficient. It also provides discussions of the theoretical, methodological, and philosophical issues that arise from the models. A case study illustrates the use of these models in urban and regional planning. Finally, the book presents a new, dynamic theory of urban spatial structure that emerges from the models and their applications.

The models are primarily land use models, but the more advanced ones also show the dynamics of population and economic activities, and are integrated with models in other domains such as economics, demography, and transportation. The result is a rich and realistic representation of the spatial dynamics of a variety of urban phenomena. The book is unique in its coverage of both the general issues associated with complex self-organizing systems and the specifics of designing and implementing models of such systems.

作者介绍:

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标签

城市

urban

modeling

city

学习

SpatialAnalysis

评论

为CA研究Urban dynamics铺垫复杂理论基础，串联作者学术生涯中的Urban models并理论化urban theory：竞争和central place；城市形态的共性fractal；城市功能的产生-moiblity、经济活动空间分布、土地利用模式；各尺度城市模型叠加；同时模拟activity和land use。

Theoretically grounded in complex self-organizing systems. Methodologically resorted to CA-based models for simulating land use and land cover changes. It should be perceived more than a toolkit. 开头理论部分讲得很清楚，而结尾处呼唤 evolutionary epistemology 更是接近复杂系统本源了。

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书评

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