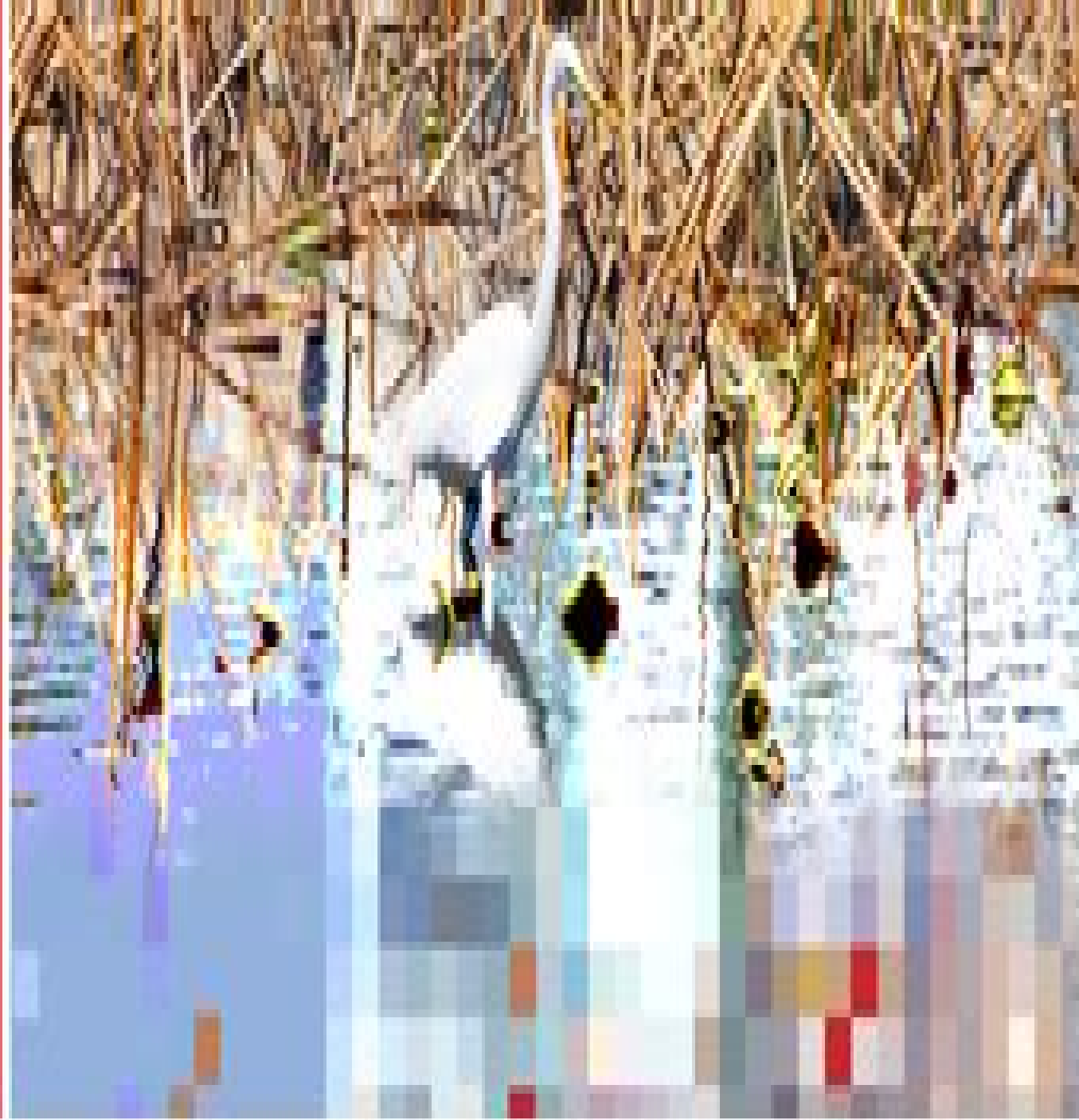


# PATTERN & PROCESS

SPATIAL SIMULATION  
EXPLORING PATTERN & PROCESS



# Spatial Simulation Exploring Pattern And Process

**Nicholas Clifford, Meghan  
Cope, Thomas Gillespie, Shaun French**



## **Spatial Simulation Exploring Pattern And Process:**

Spatial Simulation David O'Sullivan, George L. W. Perry, 2013-09-10 A ground up approach to explaining dynamic spatial modelling for an interdisciplinary audience Across broad areas of the environmental and social sciences simulation models are an important way to study systems inaccessible to scientific experimental and observational methods and also an essential complement to those more conventional approaches The contemporary research literature is teeming with abstract simulation models whose presentation is mathematically demanding and requires a high level of knowledge of quantitative and computational methods and approaches Furthermore simulation models designed to represent specific systems and phenomena are often complicated and as a result difficult to reconstruct from their descriptions in the literature This book aims to provide a practical and accessible account of dynamic spatial modelling while also equipping readers with a sound conceptual foundation in the subject and a useful introduction to the wide ranging literature Spatial Simulation Exploring Pattern and Process is organised around the idea that a small number of spatial processes underlie the wide variety of dynamic spatial models Its central focus on three building blocks of dynamic spatial models forces of attraction and segregation individual mobile entities and processes of spread guides the reader to an understanding of the basis of many of the complicated models found in the research literature The three building block models are presented in their simplest form and are progressively elaborated and related to real world process that can be represented using them Introductory chapters cover essential background topics particularly the relationships between pattern process and spatiotemporal scale Additional chapters consider how time and space can be represented in more complicated models and methods for the analysis and evaluation of models Finally the three building block models are woven together in a more elaborate example to show how a complicated model can be assembled from relatively simple components To aid understanding more than 50 specific models described in the book are available online at [patternandprocess.org](http://patternandprocess.org) for exploration in the freely available Netlogo platform This book encourages readers to develop intuition for the abstract types of model that are likely to be appropriate for application in any specific context Spatial Simulation Exploring Pattern and Process will be of interest to undergraduate and graduate students taking courses in environmental social ecological and geographical disciplines Researchers and professionals who require a non specialist introduction will also find this book an invaluable guide to dynamic spatial simulation

*Spatial Simulation* David O'Sullivan, George L. W. Perry, 2013-08-05 A ground up approach to explaining dynamic spatial modelling for an interdisciplinary audience Across broad areas of the environmental and social sciences simulation models are an important way to study systems inaccessible to scientific experimental and observational methods and also an essential complement to those more conventional approaches The contemporary research literature is teeming with abstract simulation models whose presentation is mathematically demanding and requires a high level of knowledge of quantitative and computational methods and approaches Furthermore simulation models designed to represent specific

systems and phenomena are often complicated and as a result difficult to reconstruct from their descriptions in the literature. This book aims to provide a practical and accessible account of dynamic spatial modelling while also equipping readers with a sound conceptual foundation in the subject and a useful introduction to the wide ranging literature. *Spatial Simulation: Exploring Pattern and Process* is organised around the idea that a small number of spatial processes underlie the wide variety of dynamic spatial models. Its central focus on three building blocks of dynamic spatial models: forces of attraction and segregation, individual mobile entities and processes of spread, guides the reader to an understanding of the basis of many of the complicated models found in the research literature. The three building block models are presented in their simplest form and are progressively elaborated and related to real world processes that can be represented using them. Introductory chapters cover essential background topics, particularly the relationships between pattern, process and spatiotemporal scale. Additional chapters consider how time and space can be represented in more complicated models and methods for the analysis and evaluation of models. Finally, the three building block models are woven together in a more elaborate example to show how a complicated model can be assembled from relatively simple components. To aid understanding, more than 50 specific models described in the book are available online at [patternandprocess.org](http://patternandprocess.org) for exploration in the freely available Netlogo platform. This book encourages readers to develop intuition for the abstract types of model that are likely to be appropriate for application in any specific context. *Spatial Simulation: Exploring Pattern and Process* will be of interest to undergraduate and graduate students taking courses in environmental, social, ecological and geographical disciplines. Researchers and professionals who require a non-specialist introduction will also find this book an invaluable guide to dynamic spatial simulation.

*Key Methods in Geography* Nicholas Clifford, Meghan Cope, Thomas Gillespie, Shaun French, 2016-05-21. Practical, accessible, careful and interesting, this revised volume brings the subject up to date and explains in bite-sized chunks the hows and whys of modern day geographical study. It brings together physical and human approaches again in a new synthesis. Danny Dorling, Professor of Geography, University of Oxford. *Key Methods in Geography* is the perfect introductory companion providing an overview of qualitative and quantitative methods for human and physical geography. This Third Edition features 12 new chapters representing emerging themes including online, virtual and digital geographical methods, real-life case study examples, summaries and exercises for each chapter. Free online access to full text of *Progress in Human Geography* and *Progress in Physical Geography*. Progress Reports. The teaching of research methods is integral to all geography courses. *Key Methods in Geography* Third Edition explains all of the key methods with which geography undergraduates must be conversant.

*Modelling Human Behaviour in Landscapes* Oliver Nakoinz, Daniel Knitter, 2016-04-08. This volume is designed as a 12 lecture textbook which can serve as a course companion, self-teaching guide and handbook for basic concepts. Each lecture comprises 20 pages in which the methods are introduced, examples shown and the code is given. All examples are computed with open source software, mainly R, and with archaeological data.

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