

Book Reviews | Reseñas

Temporal GIS: Advanced functions for field based approximations

G.C. Christakos, P. Bogaert and M. Serre (2002)

Springer Verlag ISBN 3-540-41476-2

Xii+218 £42,00

This book has been written for specialists. The authors adopt a Bayesian point of view for treating temporal GIS. The rationality of this approach conveys to the use of Maximum Entropy as a tool for modeling. Hence, a sound basic mathematics ability is expected from the reader. The lecture of the book provides a philosophical gusto. From that philosophy emerges a method for establishing how to consider temporal GIS. If you are looking for the essentials and roots of the phenomena, then you must use the Bayesian Principle for studying it and the perfect tool is Maximum Entropy. If you use it for prediction you are making decisions whose accuracy and exactitude are supported Bayesianly.

The authors provide MATLAB software that permit to develop this type of analysis in practice. For using it you will need a version no older than MATLAB 5.0.

If your involved in GIS research and you are well statistically prepared this is your book for looking at it with a broader spectra.

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Geostatistical Simulation

C. Lantuejoul (2002)

Springer Verlag ISBN 3-540-42202-1

Xiv+256 £37,00

The author sets in this book a sufficiently broad (abstract) probability model that permits to include the common models used in geostatistical studies. Using it the somewhat set of scattered recipes and original but no-unified ideas have an adequate theoretical framework and they flow naturally. Its main point is to describe how simulation methods can be used in geostatistics. The needed theory, and a lot more, is provided as well as algorithms for implementing them. They cover Gaussian and non-Gaussian random fields based models. For doing so the author divides the contents into three parts. The first one is devoted to the definition of random fields, point processes, random sets, variograms, integral range, morphological operators and stereological formula based on Minkowsky's functionals. The second part presents the basics of simulation methods, Markov Chains, Monte Carlo models, estimators of the empirical convergence rates of them and principles of exact simulation. The last part discusses the use of unconditional and conditional simulation in popularly used geostatistical models (Poisson-Cox point processes, Voronoi-Poisson tessellation, Boolean methods, object-based models, and Gaussian random functions. A chapter is dedicated to each of these models where its definition is given together with the ideas that susttain it. The needed algorithms are developed. It is a good basic book if you are at home with mathematics. If you have a good probabilistic basis it will be easier to go with its contents. It is a nicely written book.

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Modern developments in multivariate approximation

Werner Haussman, Kart Jetter, Manfred Reimer y Joachim Stoeckler [2003]

Birkhäuser ISBN 3-7643-2195

Xi+320 £98,00

El volumen 145 de la International Series of Numerical Mathematics editada por Werner Asuman, Kart Setter, Manfred Reimer y Joachim Stoeckler está dedicada a la publicación de las principales temáticas y charlas presentadas en la V Internacional Conference on Multivariate Approximation realizada del 22 al 27 de septiembre del 2002 en la "Haus Bommerholz", la casa de visita de la Universidad de Dortmund.

En la misma se programaron 11 conferencias invitadas de una hora, 21 charlas y una sesión de problemas, a la que asistieron 49 participantes de 10 países.

La realización del volumen fue auspiciada por la Universidad de Dortmund y la realización de la conferencia por la DFG (Asociación Alemana para la Investigación).

Como es usual en esta serie de conferencias se presentaron trabajos relacionados con la teoría y las aplicaciones de la Aproximación Multivariada, 18 de los cuales fueron seleccionados y presentados en este volumen entre los que se encuentran los relacionados con problemas teóricos o de aplicación.

Entre las aplicaciones se encuentran por ejemplo, "Two Applications of Adaptive Wavelet Methods" o también "Reconstructing Multivariate Functions from Large Data Sets", o los interesantes trabajos con estudios teóricos como "Fundamental Splines on Triangulations" y "Three Scale Versus Matriz Refinement Equations", estudio del cual se presentan también resultados de aplicación, por mencionar solo algunos. Les recomiendo la consulta del volumen a los interesados en la temática.

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Optimización Inteligente: Técnicas de Inteligencia Computacional para Optimización

G. Joya, M. Atencia, A. Ochoa y S. Allende (editores) 2004
Red Andaluza de Tecnologías Inteligentes ISBN 84-9747-034-6.
X+502

Este libro presenta un "State of the Art" en el tema desarrollado por investigadores del tema en Andalucía y Cuba. Se divide en tres partes. La primera trata de Sistemas Neuronales y contiene dos trabajos. La segunda tiene cuatro y discute resultados en algoritmos Evolutivos. La parte tercera trata de Metaheurísticas de Optimización y presenta dos trabajos. Por su parte la cuarta y última, con tres trabajos, trata de Sistemas Difusos y Neuro-difusos.

Este libro presenta trabajos discutidos en el I Encuentro Cubano andaluz sobre el tema celebrado en La Habana en el 2003.

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Geographic Information Systems for Transportation: Principles and Applications

H.J. Miller and S.L. Shaw (2001)
Oxford University Press ISBN 0-19-5123948
Xii+458 £46.99

This book was written for introducing the use of the Geographic Information System (GIS) in transportation. GIS may catalogued as a potent tool based on the use of modern computer software and HiTec. The book pretends that the reader will be at home with GIS after its use. In my evaluation I perceived that it is structured as follows:

Group 1 of chapters: Focus in the potential if GIS for dealing with the databases (modeling, designing, merging). They cope mainly with the basics of normal forms in relational databases.

Group 2 of chapters: They try to revel how the applications of GIS work. The discussions include how GIS deals with the determination of shortest paths and routing, network flow optimization, location of facilities, intelligent transport systems and logistics.

If part of the idea of the authors was to motivate transport specialist (urban planners, geographers, transportists, logisticians) to use GIS it is successfully accomplished. The effectiveness of the use of this book, for solving the capacitating needs for real problems solving, depends on the background of the reader. If you are not familiar with the techniques of GIS you will need to complement it with another book. I recommend it to specialists, being-in or looking to go-into the integration of GIS into their transportation problematic. It will a good help for problem modeling and analysis.

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