

Synopsis

This book provides a comprehensive yet short description of the basic concepts of Complex Network theory. In contrast to other books the authors present these concepts through real case studies. The application topics span from Foodwebs, to the Internet, the World Wide Web and the Social Networks, passing through the International Trade Web and Financial time series. The final part is devoted to definition and implementation of the most important network models. The text provides information on the structure of the data and on the quality of available datasets.

Furthermore it provides a series of codes to allow immediate implementation of what is theoretically described in the book. Readers already used to the concepts introduced in this book can learn the art of coding in Python by using the online material. To this purpose the authors have set up a dedicated web site where readers can download and test the codes. The whole project is aimed as a learning tool for scientists and practitioners, enabling them to begin working instantly in the field of Complex Networks.

Book Information

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Customer Reviews

"The authors nicely integrate ideas from data science and complex networks to create a toolkit for tackling big data challenges. An essential read in the information age." --Geoff F. Rodgers, Brunel University London, UK
"Data science and network science are two of the most dynamically developing areas in modern science. It is fantastic to see these two topics, whose synergy is evident to the practitioner, under one roof, presented with clarity and through numerous practical examples by Caldarelli and Chessa." --Albert-László Barabási, Northeastern University,

USA

Guido Caldarelli, Full Professor in Theoretical Physics, IMT Institute for Advanced Studies Lucca, Italy, Alessandro Chessa, Researcher in Theoretical Physics, IMT Institute for Advanced Studies Lucca, Italy Guido Caldarelli received his Ph.D. from SISSA (Italy), after which he was a postdoc in the University of Manchester (UK). He then worked at the TCM Group, University of Cambridge (UK), He returned to Italy as a lecturer at National Institute for Condensed Matter (INFM) and later as Primo Ricercatore in the Institute of Complex Systems of the National Research Council (CNR) of Italy. He also spent some terms at University of Fribourg (Switzerland) and he has been visiting professor at ENS in Paris, University of Barcelona and ETH Zurich. He is expert of Statistical Physics and Complex Networks and author of more than 150 publications and two books on the topic. He is currently coordinating the EC FET IP project Multiplex on Multi-level complex systems. Alessandro Chessa graduated in Physics and received a PhD in theoretical Physics at the University of Cagliari (Italy). From April 1999 to July 2000 he has been Research Associate in the Physics Department of Boston University, studying Econophysics. In the meantime he has also been Scientific Consultant at the International Center for Theoretical Physics (ICTP, Trieste) for a project about Parallel Computation. In the year 2012 he has been adjunct researcher in the Institute for Complex Systems (CNR) , 'La Sapienza' Rome, doing research in the field of Complex Network Theory. At present he is Assistant Professor in Statistical Physics in IMT, Institute of Advanced Studies, Lucca (Italy). Expert of Complex Networks and Data Science, has worked in the area of Community Detection for spatial networks. As entrepreneur is the founder of the SME Linkalab.

This book goes over six Python projects related to acquiring and processing large scale data. Of the 121 pages, if you take out the pages used to present snippets of Python code, there is probably about 30 to 40 pages of text left which contain brief theoretical expositions relevant to the project. The projects presented are interesting; but not unique in any way nor hard to find in other places. If you got this book expecting to find some original results in complex networks, given the authors' background, you will be disappointed. The best features of the book are the accuracy of the technical material presented and the extensive references. Unfortunately those do not justify the high price!

Good examples of network analysis

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