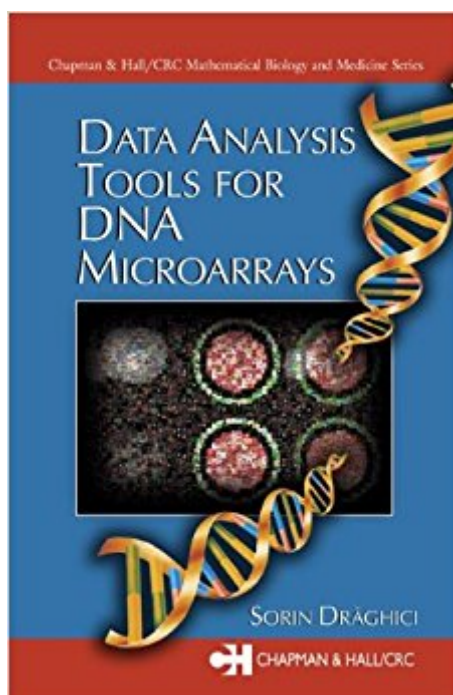# The book was found

Data Analysis Tools For DNA Microarrays

Synopsis

Technology today allows the collection of biological information at an unprecedented level of detail and in increasingly vast quantities. To reap real knowledge from the mountains of data produced, however, requires interdisciplinary skills-a background not only in biology but also in computer science and the tools and techniques of data analysis.To help meet the challenges of DNA research, Data Analysis Tools for DNA Microarrays builds the foundation in the statistics and data analysis tools needed by biologists and provides the overview of microarrays needed by computer scientists. It first presents the basics of microarray technology and more importantly, the specific problems the technology poses from the data analysis perspective. It then introduces the fundamentals of statistics and the details of the techniques most commonly used to analyze microarray data. The final chapter focuses on commercial applications with sections exploring various software packages from BioDiscovery, Insightful, SAS, and Spotfire. The book is richly illustrated with more than 230 figures in full color and comes with a CD-ROM containing full-feature trial versions of software for image analysis (ImaGene, BioDiscovery Inc.) and data analysis (GeneSight, BioDiscovery Inc. and S-Plus Array Analyzer, Insightful Inc.).Written in simple language and illustrated in full color, Data Analysis Tools for DNA Microarrays lowers the communication barrier between life scientists and analytical scientists. It prepares those charged with analyzing microarray data to make informed choices about the techniques to use in a given situation and contribute to further advances in the field.

Book Information

Series: Chapman & Hall/CRC Mathematical and Computational Biology (Book 4)

Hardcover: 512 pages

Publisher: Chapman and Hall/CRC (June 4, 2003)

Language: English

ISBN-10: 1584883154

ISBN-13: 978-1584883159

Product Dimensions: 9.4 x 6.3 x 0.8 inches

Shipping Weight: 2 pounds

Average Customer Review: 4.5 out of 5 stars See all reviews (15 customer reviews)

Best Sellers Rank: #2,324,272 in Books (See Top 100 in Books)   #98 in Books > Science & Math > Mathematics > Applied > Biomathematics   #571 in Books > Computers & Technology > Computer Science > Bioinformatics   #1772 in Books > Engineering & Transportation >

Customer Reviews

The targeted audience of this book is biologists who are eager to get an understanding of the analysis tools they use for microarrays. The book does an excellent job addressing this tier of audience.The book has plenty of examples. Almost all the examples, whether fake or real, are microarray-related. Whenever needed, figures or charts are provided to illustrate ideas. A few chapters that introduce basic statistical concepts provide solved problems and exercises. All these efforts are worthwhile making difficult statistical concepts easy to understand in the context of microarrays and making the book especially valuable for biologists who do not have strong background in statistics.This book has an emphasis on major statistical aspects of microarray data analysis. There are 17 chapters in this book. About 8 of them are directly related to statistics. Especially, there is one whole chapter devoted to multiple hypothesis testing, one chapter for ANOVA, and one chapter for experimental design. The above subjects are presented in a thorough, yet easy-to-follow style. Statistical issues are often not well addressed in published papers using microarrays. This book on microarray data analysis does an excellent job emphasizing this aspect.The title of the book indicates "data analysis". However, since this is not a clearly defined term, you should be aware that the book only deals with "the bare minimum" of data analysis. That is routines, such as normalization, transformation, statistical testing, and clustering, that have to be carried out each and every time. Exploratory data visualizing and data mining algorithms are not covered thoroughly in this book. For example, principal component analysis (PCA) is presented as a subsection of a chapter.

I have entered the area of microarray data analysis three years ago, having an engineering/machine learning background which includes good knowledge of statistics. After reading many journal papers about particular algorithms for microarray data analysis, I felt the need to read a book so that I could get the big picture of the field. At the beginning I was skeptical about reading Draghici's book because it was recommended to me as "excellent" by a biologist. I was pretty sure that given my background I will get bored of it quickly. My intuition failed me in this case because after reading it, I found it too as being far from ordinary, and answering my needs as well.The book is an easy-to-follow introduction to the area of microarray data analysis covering areas from image analysis and preprocessing, to differential expression, clustering, and high level analysis such as ontological analysis. The book is particularly useful in underlying common pitfalls with microarray

data. Examples include failing to correct for multiple testing in microarray experiments and the misuse or overuse of the clustering algorithms. Abounding examples and clear illustration are given to support every single aspect treated in the text. In my opinion, graduate level students in biology, bioinformatics and statistics can greatly benefit from the lecture of this book.Another positive aspect is the fact that, with the exception of one chapter about the available commercial software, this book was written by just one author. This gives a continuity of ideas and a consistency of notations and terms throughout the entire book.

Data Analysis Tools for DNA Microarrays Data Analytics: Practical Data Analysis and Statistical Guide to Transform and Evolve Any Business Leveraging the Power of Data Analytics, Data Science, ... (Hacking Freedom and Data Driven Book 2) Data Architecture: A Primer for the Data Scientist: Big Data, Data Warehouse and Data Vault Guide to DNA Testing: How to Identify Ancestors, Confirm Relationships, and Measure Ethnic Ancestry through DNA Testing Big Data For Beginners: Understanding SMART Big Data, Data Mining & Data Analytics For improved Business Performance, Life Decisions & More! The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences Microsoft Excel 2013 Data Analysis and Business Modeling: Data Analysis and Business Modeling (Introducing) Introducing Data Science: Big Data, Machine Learning, and more, using Python tools Discovering Knowledge in Data: An Introduction to Data Mining (Wiley Series on Methods and Applications in Data Mining) Big Data, MapReduce, Hadoop, and Spark with Python: Master Big Data Analytics and Data Wrangling with MapReduce Fundamentals using Hadoop, Spark, and Python LEARN IN A DAY! DATA WAREHOUSING. Top Links and Resources for Learning Data Warehousing ONLINE and OFFLINE: Use these FREE and PAID resources to Learn Data Warehousing in little to no time Data Just Right: Introduction to Large-Scale Data & Analytics (Addison-Wesley Data and Analytics) Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython Excel Conditional Formatting: Tips You Can Use Immediately To Make Your Data Stand Out (Data Analysis With Excel Book 3) Python Data Analytics: Data Analysis and Science using pandas, matplotlib and the Python Programming Language Just Plain Data Analysis: Finding, Presenting, and Interpreting Social Science Data Statistics for Ecologists Using R and Excel: Data Collection, Exploration, Analysis and Presentation (Data in the Wild) Data Analysis & Statistics (Mathematical Analysis for Scientists & Engineers Book 5) The DNA of Relationships The UltraMetabolism Cookbook: 200 Delicious Recipes that Will Turn on Your Fat-Burning DNA