

Citations

From References: 15

From Reviews: 0

MR1874451 (2003h:94002) 94A08 65T60

Kirby, Michael [[Kirby, Michael Joseph](#)] (1-COS)

★ Geometric data analysis. (English summary)

An empirical approach to dimensionality reduction and the study of patterns.

Wiley-Interscience [John Wiley & Sons], New York, 2001. xx+363 pp.

ISBN 0-471-23929-1

This monograph is about connecting dots, both technically and spiritually.

Technically, it is about various modern (smart) ways of connecting and grouping (massive) data dots, either structured or not, so that only a few key feature indices are needed to give a sufficiently good description.

Spiritually, its goal is to offer a systematic and well-organized view to various approaches and techniques (i.e. scientific dots) for data reduction, scattered across a number of fields in contemporary science and technology, such as data mining, imaging science, scientific computation, and pattern analysis.

No doubt, such efforts are great and important in this digital and information era, when massive data are virtually in every corner of our life.

From Karhunen-Loeve, SVD, wavelets, neural networks, to the computational values of Whitney's embedding theorem, the book well expresses the author's opinions and approaches for systematic data reduction analysis, based on global and local, or geometric and time-frequency features.

The technical level is quite accessible to seniors and some juniors, and certainly for beginning graduate students. It also makes a great desktop copy for scientists and engineers who deal with massive experimental/statistical/computational data every day.

In short, the book effectively describes and summarizes an emerging new field, namely, scientific data modeling and analysis.

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