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Foundations of data visualization. (English) [Zbl 1442.68005](#)
Cham: Springer (ISBN 978-3-030-34443-6/hbk; 978-3-030-34444-3/ebook). xvii, 383 p. (2020).

Publisher's description: This is the first book that focuses entirely on the fundamental questions in visualization. Unlike other existing books in the field, it contains discussions that go far beyond individual visual representations and individual visualization algorithms. It offers a collection of investigative discourses that probe these questions from different perspectives, including concepts that help frame these questions and their potential answers, mathematical methods that underpin the scientific reasoning of these questions, empirical methods that facilitate the validation and falsification of potential answers, and case studies that stimulate hypotheses about potential answers while providing practical evidence for such hypotheses. Readers are not instructed to follow a specific theory, but their attention is brought to a broad range of schools of thoughts and different ways of investigating fundamental questions. As such, the book represents the by now most significant collective effort for gathering a large collection of discourses on the foundation of data visualization.

Data visualization is a relatively young scientific discipline. Over the last three decades, a large collection of computer-supported visualization techniques have been developed, and the merits and benefits of using these techniques have been evidenced by numerous applications in practice. These technical advancements have given rise to the scientific curiosity about some fundamental questions such as why and how visualization works, when it is useful or effective and when it is not, what are the primary factors affecting its usefulness and effectiveness, and so on. This book signifies timely and exciting opportunities to answer such fundamental questions by building on the wealth of knowledge and experience accumulated in developing and deploying visualization technology in practice.

The articles of this volume will not be indexed individually.

MSC:

- 68-06 Proceedings, conferences, collections, etc. pertaining to computer science
- 68T09 Computational aspects of data analysis and big data
- 68U05 Computer graphics; computational geometry (digital and algorithmic aspects)
- 00B15 Collections of articles of miscellaneous specific interest

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