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A Survey of Information Visualization Books

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Abstract: Information visualization is a rapidly evolving field with a growing volume of scientific literature and texts continually published. To keep abreast of the latest developments in the domain, survey papers and state-of-the-art reviews provide valuable tools for managing the large quantity of scientific literature. Recently, a survey of survey papers was published to keep track of the quantity of refereed survey papers in information visualization conferences and journals. However, no such resources exist to inform readers of the large volume of books being published on the subject, leaving the possibility of valuable knowledge being overlooked. We present the first literature survey of information visualization books that addresses this challenge by surveying the large volume of books on the topic of information visualization and visual analytics. This unique survey addresses some special challenges associated with collections of books (as opposed to research papers) including searching, browsing and cost. This paper features a novel two-level classification based on both books and chapter topics examined in each book, enabling the reader to quickly identify to what depth a topic of interest is covered within a particular book. Readers can use this survey to identify the most relevant book for their needs amongst a quickly expanding collection. In indexing the landscape of information visualization books, this survey provides a valuable resource to both experienced researchers and newcomers in the data visualization discipline.

The State of the Art in Multilayer Network Visualization

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Abstract: Modelling relationships between entities in real-world systems with a simple graph is a standard approach. However, reality is better embraced as several interdependent subsystems (or layers). Recently the concept of a multilayer network model has emerged from the field of complex systems. This model can be applied to a wide range of real-world datasets. Examples of multilayer networks can be found in the domains of life sciences, sociology, digital humanities and more. Within the domain of graph visualization there are many systems which visualize datasets having many characteristics of multilayer graphs. This report provides a state of the art and a structured analysis of contemporary multilayer network visualization, not only for researchers in visualization, but also for those who aim to visualize multilayer networks in the domain of complex systems, as well as those developing systems across application domains. We have explored the visualization literature to survey visualization techniques suitable for multilayer graph visualization, as well as tools, tasks, and analytic techniques from within application domains. This report also identifies the outstanding challenges for multilayer graph visualization and suggests future research directions for addressing them.