Information visualization & how-to-do-it guides


This collection of thirteen essays describes the history, methods, and uses of information visualization. The collection includes works with a variety of fascinating diagrams that demonstrate the display of information in two and three dimensions. The collection is useful for anyone looking for more masterful and creative ways to present their data. It represents a culmination of current research trends in the field, and balances discussion of the techniques of visualization with their usability and evaluation. The work itself is meant for an audience of all fields and backgrounds, so it aims to be a highly readable and comprehensive set of papers.–ER


Börner and Polley developed this book as a companion to the Information Visualization MOOC, though it can also stand alone as an introduction to data mining and the design of information visualization techniques. The book not only provides a theoretical framework for understanding information visualization, but also acts as a guide to developing the practical skills that are needed to create meaning out of data. They provide a grounded and precise explanation of the various aspects of datasets and types of data, which are used to identify the best and most appropriate kinds of visualizations to employ. Börner writes in plain, comprehensible language that makes the book an excellent read for newcomers to the discipline!–ER


Card, Mackinlay and Schneideman’s book is one of the foundational works in the field of information visualization. The papers collected here offer a well-rounded and in-depth introduction to the field for newcomers, but also have more than enough complexity of content to be a much-needed read for those with existing deeper knowledge of the topics. The contents of this book touch on every aspect of information visualization, and the book has great value as a reference text or teaching tool.–ER

Crane begins her sociological investigation into the potential usefulness of infographics to library staff with a goal in mind: She aims to help libraries to better reach their patrons by using infographics to inform about the vast array of library services and products that often go unused. This book intends to function as a tool for librarians looking for greater community engagement by providing examples of successful employment of visual communication. The infographics that Crane presents are highly illustrative examples of the benefits that can come from employing them. –ER


Creighton provides both a practical guide for creating infographics and an informative look into the benefits of their usage. This book highlights the usefulness of infographics over traditional methods, and then presents step-by-step guides on getting started, both in terms of content and form. Various chapters explain how to use simple existing business software or online applications to create stylish and informative graphics; these are followed by chapters on the ways that infographics themselves have been and can be used in library spaces. –ER


Magnuson, a systems and technologies librarian at California State University, has put together a fantastically useful and highly practical guide to the tools and skills that librarians will need to create data visualizations. With a tight focus on the applications of data visualization in libraries, Magnuson provides insight on how to clean, organize, manipulate, and understand the various data that librarians can gather in their jobs, and outlines how that data can be used to advocate for their organization – whether it be regarding patron behaviour or reference analytics. –ER

Accomplished Atlanta law librarian Sarah KC Mauldin lays down the law on the creation and usefulness of infographics. This slim volume, described as a “how-to-do-it book”, provides instructions on applying various information visualization techniques to make your own engaging infographics, with plenty of real-world examples and case studies to guide your work. Mauldin also devotes part of this book to helping readers learn how to assess their data, and their narrative, to determine whether or not a visual representation will be the most effective medium for its communication.—ER

---


This book provides a plethora of techniques and methods for data visualization which are broadly applicable across all disciplines. Telea presents techniques and illustrates visualization algorithms using plain structured programming (or in C++). The book is targeted at “computer-science, mathematics, and engineering-sciences students”, and is written for the technical knowledge of that audience. However, Telea does strive to provide the content in a way that minimizes learning time, so it should not necessarily scare off those unfamiliar with the content. Telea also uses the various section of this book to emphasize the wide range of problems that can be addressed using visualization techniques, and the far-ranging applications of the methodologies reviewed therein.—ER

---

**Design principles & applications**


This book is an excellent primer to the topic of designing visual displays for information. Coates and Ellison have created a comprehensive guide to all the issues people come up against when doing information design, and provide appropriate tools to address these questions as they arise. The book is a key aid in the process of demystifying the complexities of the information design process, and provides a straightforward guide to the work involved in that process.—ER
**TK7882 .I6 B44 2003**

Bederson and Shneiderman have a lot of valuable insight to offer on understanding computerized information visualization. As former directors of the Human-Computer Interaction Laboratory at the University of Maryland, the two have compiled 38 papers from the HCIL to present a full and robust vision of academic thought in information visualization, and its applications in many fields. Both authors have a great deal of insight and experience in what they refer to as creating optimal experience for users through interfaces. This book provides a practical basis and application for their understandings.—ER

**TK7882 .I6 C477 2004**

Chen’s book, the first edition of which was published in 1999, is a seminal work in the information visualization field, and follows the structure-centered tradition of understanding. Chen has written a fantastically thorough investigation into the place of information visualization as a discipline that crosses into many other fields and areas of work.—ER

**741.6 C652I**

This book is an excellent primer to the topic of designing visual displays for information. Coates and Ellison have created a comprehensive guide to all the issues people come up against when doing information design, and provide appropriate tools to address these questions. The book is a key aid in the process of demystifying the complexities of the information design process, and provides a straightforward guide to the work involved in that process.—ER

In this book, Frascara works to provide not only an insightful and comprehensive definition of information design, but a practical look at the how and the why of accessible information. Frascara provides a collection of papers by various experts to first provide an introduction to the concept of information design and a conceptual framework for the field, followed by case studies in both design practice and design education. –ER


Meirelles organizes her book around six different design structures, examining them from both the perspective of information content and design strategies. Each structure is presented with a variety of examples and case studies to assist in your learning, and is aimed at providing readings with a practical understanding of information visualization concepts and the tools needed to act upon them. The book provides a wide breadth of content coverage at a level perfect for those just developing an interest in the field. –ER


Moran and Carroll provide a collection of papers on the subject of design thinking - specifically, on the area of explaining and justifying design thinking. This early work in the field brings together a collection of tools and techniques not just for designing but also for teaching design. They devote chapters to a variety of topics, such as: taking a problem-centric approach to design rationale (Chapter 5); how design rationale can be used to improve design and promote critical reflection (Chapter 9); how design rationale can be used to improve learning (Chapter 13); and how design rationale can lead to organizational innovation (Chapter 15). –ER

Spence’s book is a highly readable textbook on the field of information visualization that focuses on real-world applications and instances of its content. Spence provides readers with the means to understand the methods and tools for meaningfully representing information visually in a wide range of media. The applications and methods discussed have repercussions beyond the information visualization discipline, and are also useful for those who work in or study interaction design, computer graphics, and human-computer interaction. –ER


This is a seminal work on the subject of representing data visually. Tufte presents a virtual catalog of all the dynamic and complex ways that information can be rendered visually. Tufte presents both historical and modern visualisations from every subject and discipline – including major subjects like geography, astronomy, and sociology, and also dance, and even commercial railroad scheduling. He lays out core principles for visualization that persist through various media. This is critical for anyone with an interest in the topic! –ER


Ware, the Director of the University of New Hampshire’s Data Visualization Research Lab, uses *Visual Thinking for Design* to apply psychological principles to design practices. Ware describes and illuminates the various principles of cognitive psychology that impact the way that seeing information determines understanding, and applies those principles to the question of creating good design. He presents a treatise on how to create meaning visually, and the composition elements that effect the interpretation of the intended message. An easy read with plenty of highly illustrative examples, and good even for those without a background in psychology. –ER
Visual communication & culture


Susan Barnes is the Associate Director of the Lab for Social Computing at the Rochester Institution of Technology. Her book looks at the ways in which technology has changed the role of visual images in contemporary communication. The book has a strong focus on the intersection of visual literacy and digital media, and provides a primer on applying cognitive theory to digital media. Barnes provides a thorough and well-researched history of visual communication, and discusses the application of existing principles for visual communication to the design and understanding of digital media.–ER


Blasius and Greenacre’s collection of essays provides insight into the way that having visual representations of data allows us to better talk about the data itself. The first half of the collection details the connection between visual analysis and the explication of underlying data structures, while the second half illustrates various visualization methods and how they contribute to our understanding of data. Part mathematical treatise and part epistemological discourse, this collection provides a strong argument for the current (and future!) potential of data visualization methodologies.–ER


This book presents studies of visual literacy and visual culture from nations around the world. The papers in the book cover six countries – Slovenia, Japan, Ireland, Poland, China, and Russia. The essays, written by authorities on their respective nations, provide specific and contextualized understanding of the way that humans communicate and create culture visually. The content is both analytical and historical, as it also explores the timeline of visual culture for its subject nations. –ER

This collection of papers brings together all the dynamic aspects of the field of visual culture to present a guide to the main issues and research methods employed in its scholarship. The book is divided into five sections: first, an introduction to historical and theoretical perspectives on visual communication, which focuses on the history of visuals as well as the history of the field. The middle three sections focus on real-world instances of visual culture – art, aesthetics, and the practices and institutions that serve as visual culture’s medium. Papers in the fifth and final section review developments in the field of study that surround visual culture, including its applications in the research of other disciplines, and the future that digitization holds for a world of images. –ER


Eileen Hooper-Greenhill, Professor Emeritus in the Department of Museum Studies at the University of Leicester (and Head of the department from 1996 to 2002), has created a treatise on the meaning that museum visitors make from the collections on display. Her focus in this study is the intersection of pedagogy and visual culture, and their place in the construction of museum exhibits. Hooper-Greenhill examines the ways in which museum audiences make meaning from visual displays, and provides a provocative discussion on the nature of audiences’ interactions with and interpretations of museums’ collections. –ER


This book provides an overview of major considerations – practical, theoretical, and even ethical – related to conducting image-based research. More than just providing information on conducting the research, Marion and Crowder delve into the context under which researchers of the visual should work – highlighting the importance of thinking visually in preparation for doing visual interpretation. As it is concise, highly readable, and provides further information on every topic it covers, this book is an invaluable tool for anyone just starting out in the realm of image-based research. –ER

In this early book on the subject of visual culture, Mirzoeff has brought together contributions from over forty authors to represent a comprehensive reading list. The papers in it cover various forms, from photography and sculpture to advertising and virtual reality, and trace the development of visual culture studies as a discipline. The content will be of interest both to those with an interest in historical works and those curious about the future of visual life. – ER


Mirzoeff’s second edition looks broadly at the field of visual culture, and explores why and how the visual has become the central medium of everyday life and communication. The extensiveness of the content is matched by the readability of the text itself, and provides an understanding that is contextualised in the social reality of people’s lives. The second edition includes additional information on the difficulties that the field of visual culture faces in the era of globalization, and how that has changed it since the first edition was published in 1999. – ER


This book is on its third edition (the first published in the 1990s), as its usefulness to the fields of sociology and visual research have been tremendous. As the introduction says, images are everywhere, so having the capacity to analyse and understand them in an ethnographic framework is key for any researcher or student interested in the impact of the visual. Pink creates a thorough framework for applying ethnographic techniques to the visual realm, and fairly represents all the potential risks and drawbacks that are inherent in the technique. – ER
How to borrow

The Inforum is open to members of the *University of Toronto* community, as well as the general public. For more information, please see our borrowing page at [http://uoft.me/inforum-borrowing](http://uoft.me/inforum-borrowing)

To find more books on this topic

There are many other books on this topic in the Inforum, as well as in other libraries in the University of Toronto Libraries (UTL) system. Try a subject search in the UTL catalogue at [http://search.library.utoronto.ca](http://search.library.utoronto.ca) with these suggested subject headings:

- Graphic design (Typography).
- Information visualization.
- Visual analytics.
- Visual anthropology.
- Visual communication.
- Visual literacy.
- Visual perception.
- Visual sociology.
- Visualization.
- Visualization--Data processing.

– Compiled by Eden Rusnell, Inforum Student Assistant & MI Candidate (2017) | February 2017
Available on the Inforum website at [http://uoft.me/inforum-bibliographies](http://uoft.me/inforum-bibliographies)
Inforum, Faculty of Information, University of Toronto [http://uoft.me/inforum](http://uoft.me/inforum)