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Data Science John D. Kelleher 2018-04-13 A concise introduction to the emerging field of data science, explaining its evolution, relation to machine learning, current uses, data infrastructure issues, and ethical challenges. The goal of data science is to improve decision making through the analysis of data. Today data science determines the ads we see online, the books and movies that are recommended to us online, which emails are filtered into our spam folders, and even how much we pay for health insurance. This volume in the MIT Press Essential Knowledge series offers a concise introduction to the emerging field of data science, explaining its evolution, current uses, data infrastructure issues, and ethical challenges. It has never been easier for organizations to gather, store, and process data. Use of data science is driven by the rise of big data and social media, the development of high-performance computing, and the emergence of such powerful methods for data analysis and modeling as deep learning. Data science encompasses a set of principles, problem definitions, algorithms, and processes for extracting non-obvious and useful patterns from large datasets. It is closely related to the fields of data mining and machine learning, but broader in scope. This book offers a brief history of the field, introduces fundamental data concepts, and describes the stages in a data science project. It considers data infrastructure and the challenges posed by integrating data from multiple sources, introduces the basics of machine learning, and discusses how to link machine learning expertise with real-world problems. The book also reviews ethical and legal issues, developments in data regulation, and computational approaches to preserving privacy. Finally, it considers the future impact of data science and offers principles for success in data science projects.
GPS Paul E. Ceruzzi 2018-11-06 A concise history of GPS, from its military origins to its commercial applications and ubiquity in everyday life. GPS is ubiquitous in everyday life. GPS mapping is standard equipment in many new cars and geolocation services are embedded in smart phones. GPS makes Uber and Lyft possible; driverless cars won't be able to drive without it. In this volume in the MIT Press Essential Knowledge series, Paul Ceruzzi offers a concise history of GPS, explaining how a once-obscure space technology became an invisible piece of our infrastructure, as essential to modern life as electric power or clean water. GPS relays precise time and positioning information from orbiting satellites to receivers on the ground, at sea, and in the air. It operates worldwide, and its basic signals are free, although private companies can commodify the data provided. Ceruzzi recounts the origins of GPS and its predecessor technologies, including early aircraft navigation systems and satellites. He describes the invention of GPS as a space technology in the post-Apollo, pre-Space Shuttle years and its first military and commercial uses. Ceruzzi explains how the convergence of three major technological developments—the microprocessor, the Internet, and cellular telephony—enabled the development and application of GPS technology. Recognizing the importance of satellite positioning systems in a shifting geopolitical landscape—and perhaps doubting U.S. assurances of perpetual GPS availability—other countries are now building or have already developed their own systems, and Ceruzzi reports on these efforts in the European Union, Russia, India, China, and Japan.
Model Rules of Professional Conduct American Bar Association. House of Delegates 2007 The Model Rules of Professional Conduct provides an up-to-date resource for information on legal ethics. Federal, state and local courts in all jurisdictions look to the Rules for guidance in solving lawyer malpractice cases, disciplinary actions, disqualification issues, sanctions questions and much more. In this volume, black-letter Rules of Professional Conduct are followed by numbered Comments that explain each Rule's purpose and provide suggestions for its practical application. The Rules will help you identify proper conduct in a variety of given situations, review those instances where discretionary action is possible, and define the nature of the relationship between you and your clients, colleagues and the courts.
Metadata and Semantic Research Emmanouel Garoufallou 2021-03-17 This book constitutes the thoroughly refereed proceedings of the 14th International Conference on Metadata and Semantic Research, MTSR 2020, held in Madrid, Spain, in December 2020. Due to the COVID-19 pandemic the conference was held online. The 24 full and 13 short papers presented were carefully reviewed and selected from 82 submissions. The papers are organized in the following tracks: metadata, linked data, semantics and ontologies; metadata and semantics for digital libraries, information retrieval, big, linked, social and open data; metadata and semantics for agriculture, food, and environment, AgroSEM 2020; metadata and semantics for open repositories, research information systems and data infrastructures; digital humanities and digital curation, DHC 2020; metadata and semantics for cultural collections and applications; european and national projects; knowledge IT artifacts (KITA) in professional communities and aggregations, KITA 2020.
Metadata Jeffrey Pomerantz 2015-11-06 Everything we need to know about metadata, the usually invisible infrastructure for information with which we interact every day. When "metadata" became breaking news, appearing in stories about surveillance by the National Security Agency, many members of the public encountered this once-obscure term from information science for the first time. Should people be reassured that the NSA was "only" collecting metadata about phone calls—information about the caller, the recipient, the time, the duration, the location—and not recordings of the conversations themselves? Or does phone call metadata reveal more than it seems? In this book, Jeffrey Pomerantz offers an accessible and concise introduction to metadata.

In the era of ubiquitous computing, metadata has become infrastructural, like the electrical grid or the highway system. We interact with it or generate it every day. It is not, Pomerantz tell us, just "data about data." It is a means by which the complexity of an object is represented in a simpler form. For example, the title, the author, and the cover art are metadata about a book. When metadata does its job well, it fades into the background; everyone (except perhaps the NSA) takes it for granted. Pomerantz explains what metadata is, and why it exists. He distinguishes among different types of metadata—descriptive, administrative, structural, preservation, and use—and examines different users and uses of each type. He discusses the technologies that make modern metadata possible, and he speculates about metadata's future. By the end of the book, readers will see metadata everywhere. Because, Pomerantz warns us, it's metadata's world, and we are just living in it.

Meta/data Mark Amerika 2007 A compilation of writings by a pioneering digital artist blends personal reminiscences, net art theory, fictional narrative, satire, scholarly history, journalism, and language art in a digital sampling of the Internet art world and chronicles the evolution of new media art forms.

Intellectual Property Strategy John Palfrey 2011-10-07 How a flexible and creative approach to intellectual property can help an organization accomplish goals ranging from building market share to expanding an industry. Most managers leave intellectual property issues to the legal department, unaware that an organization's intellectual property can help accomplish a range of management goals, from accessing new markets to improving existing products to generating new revenue streams. In this book, intellectual property expert and Harvard Law School professor John Palfrey offers a short briefing on intellectual property strategy for corporate managers and nonprofit administrators. Palfrey argues for strategies that go beyond the traditional highly restrictive "sword and shield" approach, suggesting that flexibility and creativity are essential to a profitable long-term intellectual property strategy—especially in an era of changing attitudes about media. Intellectual property, writes Palfrey, should be considered a key strategic asset class. Almost every organization has an intellectual property portfolio of some value and therefore the need for an intellectual property strategy. A brand, for example, is an important form of intellectual property, as is any information managed and produced by an organization. Palfrey identifies the essential areas of intellectual property—patent, copyright, trademark, and trade secret—and describes strategic approaches to each in a variety of organizational contexts, based on four basic steps. The most innovative organizations employ multiple intellectual property approaches, depending on the situation, asking hard, context-specific questions. By doing so, they achieve both short- and long-term benefits while positioning themselves for success in the global information economy.

Open Access Peter Suber 2012-07-20 A concise introduction to the basics of open access, describing what it is (and isn't) and showing that it is easy, fast, inexpensive, legal, and beneficial. The Internet lets us share perfect copies of our work with a worldwide audience at virtually no cost. We take advantage of this revolutionary opportunity when we make our work "open access": digital, online, free of charge, and free of most copyright and licensing restrictions. Open access is made possible by the Internet and copyright-holder consent, and many authors, musicians, filmmakers, and other creators who depend on royalties are understandably unwilling to give their consent. But for 350 years, scholars have written peer-reviewed journal articles for impact, not for money, and are free to consent to open access without losing revenue. In this concise introduction, Peter Suber tells us what open access is and isn't, how it benefits authors and readers of research, how we pay for it, how it avoids copyright problems, how it has moved from the periphery to the mainstream, and what its future may hold. Distilling a decade of Suber's influential writing and thinking about open access, this is the indispensable book on the subject for researchers, librarians, administrators, funders, publishers, and policy makers.

Trino: The Definitive Guide Matt Fuller 2021-04-14 Perform fast interactive analytics against different data sources using the Trino high-performance distributed SQL query engine. With this practical guide, you'll learn how to conduct analytics on data where it lives, whether it's Hive, Cassandra, a relational database, or a proprietary data store. Analysts, software engineers, and production engineers will learn how to manage, use, and even develop with Trino. Initially developed by Facebook, open source Trino is now used by Netflix, Airbnb, LinkedIn, Twitter, Uber, and many other companies. Matt Fuller, Manfred Moser, and Martin Traverso show you how a single Trino query can combine data from multiple sources to allow for analytics across your entire organization. Get started: Explore Trino's use cases and learn about tools that will help you connect to Trino and query data Go deeper: Learn Trino's internal workings, including how to connect to and query data sources with support for SQL statements, operators, functions, and more Put Trino in production: Secure Trino, monitor workloads, tune queries, and connect more applications; learn how other organizations apply Trino

Machine Translation Thierry Poibeau 2017-09-15 A concise, nontechnical overview of the development of machine translation, including the different approaches, evaluation issues, and major players in the industry. The dream of a universal translation device goes back many decades, long before Douglas Adams's fictional Babel fish provided this service in The Hitchhiker's Guide to the Galaxy. Since the advent of computers, research has focused on the design of digital machine translation tools—computer programs capable of automatically translating a text from a source language to a target language. This has become one of the most fundamental tasks of artificial intelligence. This volume in the MIT Press Essential Knowledge series offers a concise, nontechnical overview of the development of machine translation, including the different approaches, evaluation issues, and market potential. The main approaches are presented from a largely historical perspective and in an intuitive manner, allowing the reader to understand the main principles without knowing the mathematical details. The book begins by discussing problems that must be solved during the development of a machine translation system and offering a brief overview of the evolution of the field. It then takes up the history of machine translation in more detail, describing its pre-digital beginnings, rule-based approaches, the 1966 ALPAC (Automatic Language Processing Advisory Committee) report and its consequences, the advent of parallel corpora, the example-based paradigm, the statistical paradigm, the segment-based approach, the introduction of more linguistic knowledge into the systems, and the latest approaches based on deep learning. Finally, it considers evaluation challenges and the commercial status of the field, including activities by such major players as Google and Systran.

The Technological Singularity Murray Shanahan 2015-08-07 The idea of technological singularity, and what it would mean if ordinary human intelligence were enhanced or overtaken by artificial intelligence. The idea that human history is approaching a "singularity"—that ordinary humans will someday be overtaken by artificially intelligent machines or cognitively enhanced biological intelligence, or both—has moved from the realm of science fiction to serious debate. Some singularity theorists predict that if the field of artificial intelligence (AI) continues to develop at its current dizzying rate, the singularity could come about in the middle of the present century. Murray Shanahan offers an introduction to the idea of the singularity and considers the ramifications of such a potentially seismic event. Shanahan's aim is not to make predictions but rather to investigate a range of scenarios. Whether we believe that singularity is near or far, likely or impossible,

apocalypse or utopia, the very idea raises crucial philosophical and pragmatic questions, forcing us to think seriously about what we want as a species. Shanahan describes technological advances in AI, both biologically inspired and engineered from scratch. Once human-level AI—theoretically possible, but difficult to accomplish—has been achieved, he explains, the transition to superintelligent AI could be very rapid. Shanahan considers what the existence of superintelligent machines could mean for such matters as personhood, responsibility, rights, and identity. Some superhuman AI agents might be created to benefit humankind; some might go rogue. (Is Siri the template, or HAL?) The singularity presents both an existential threat to humanity and an existential opportunity for humanity to transcend its limitations. Shanahan makes it clear that we need to imagine both possibilities if we want to bring about the better outcome.

Practical Evaluation Techniques for Librarians Rachel Applegate 2013-08-15 Evaluation is essential to library management: it provides the data that underlies informed and effective decision-making. This book is a one-volume, how-to guide to library evaluation techniques, planning, and reporting. • Provides specific directions for writing surveys, conducting interviews, and performing a wide range of evaluation techniques, accompanied by examples to follow • Covers the evaluation of library's electronic and physical collections, face-to-face and virtual service, and facilities • Supplies a framework and specific tools for proving your library's value and improving how it operates • Lays out a clear methodology for quantifying and demonstrating progress towards an objective: measure, analyze, and report

Data Model Patterns: A Metadata Map David C. Hay 2010-07-20 Data Model Patterns: A Metadata Map not only presents a conceptual model of a metadata repository but also demonstrates a true enterprise data model of the information technology industry itself. It provides a step-by-step description of the model and is organized so that different readers can benefit from different parts. It offers a view of the world being addressed by all the techniques, methods, and tools of the information processing industry (for example, object-oriented design, CASE, business process re-engineering, etc.) and presents several concepts that need to be addressed by such tools. This book is pertinent, with companies and government agencies realizing that the data they use represent a significant corporate resource recognize the need to integrate data that has traditionally only been available from disparate sources. An important component of this integration is management of the "metadata" that describe, catalogue, and provide access to the various forms of underlying business data. The "metadata repository" is essential to keep track of the various physical components of these systems and their semantics. The book is ideal for data management professionals, data modeling and design professionals, and data warehouse and database repository designers. A comprehensive work based on the Zachman Framework for information architecture—encompassing the Business Owner's, Architect's, and Designer's views, for all columns (data, activities, locations, people, timing, and motivation) Provides a step-by-step description of model and is organized so that different readers can benefit from different parts Provides a view of the world being addressed by all the techniques, methods and tools of the information processing industry (for example, object-oriented design, CASE, business process re-engineering, etc.) Presents many concepts that are not currently being addressed by such tools — and should be

Cloud Computing Nayan B. Ruparelia 2016-05-06 Why cloud computing represents a paradigm shift for business, and how business users can best take advantage of cloud services. Most of the information available on cloud computing is either highly technical, with details that are irrelevant to non-technologists, or pure marketing hype, in which the cloud is simply a selling point. This book, however, explains the cloud from the user's viewpoint—the business user's in particular. Nayan Ruparelia explains what the cloud is, when to use it (and when not to), how to select a cloud service, how to integrate it with other technologies, and what the best practices are for using cloud computing. Cutting through the hype, Ruparelia cites the simple and basic definition of cloud computing from the National Institute of Science and Technology: a model enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources. Thus with cloud computing, businesses can harness information technology resources usually available only to large enterprises. And this, Ruparelia demonstrates, represents a paradigm shift for business. It will ease funding for startups, alter business plans, and allow big businesses greater agility. Ruparelia discusses the key issues for any organization considering cloud computing: service level agreements, business service delivery and consumption, finance, legal jurisdiction, security, and social responsibility. He introduces novel concepts made possible by cloud computing: cloud cells, or specialist clouds for specific uses; the personal cloud; the cloud of things; and cloud service exchanges. He examines use case patterns in terms of infrastructure and platform, software information, and business process; and he explains how to transition to a cloud service. Current and future users will find this book an indispensable guide to the cloud.

Photo Forensics Hany Farid 2016-11-04 The first comprehensive and detailed presentation of techniques for authenticating digital images.

The Joy of Search Daniel M. Russell 2019-10-01 A Google researcher reveals the art of online searching, offering tips and tricks on how best to use resources like Google and Wikipedia—plus fun facts and fascinating stories We all know how to look up something online by typing words into a search engine. We do this so often that we have made the most famous search engine a verb: we Google it—"Japan population" or "Nobel Peace Prize" or "poison ivy" or whatever we want to know. But knowing how to Google something doesn't make us search experts; there's much more we can do to access the massive collective knowledge available online. In The Joy of Search, Daniel Russell shows us how to be great online researchers. We don't have to be computer geeks or a scholar searching out obscure facts; we just need to know some basic methods. Russell demonstrates these methods with step-by-step searches for answers to a series of intriguing questions—from "what is the wrong side of a towel?" to "what is the most likely way you will die?" Along the way, readers will discover essential tools for effective online searches—and learn some fascinating facts and interesting stories. Russell explains how to frame search queries so they will yield information and describes the best ways to use such resources as Google Earth, Google Scholar, Wikipedia, and Wikimedia. He shows when to put search terms in double quotes, how to use the operator (*), why metadata is important, and how to triangulate information from multiple sources. By the end of this engaging journey of discovering, readers will have the definitive answer to why the best online searches involve more than typing a few words into Google.

Metadata Marcia Lei Zeng 2008-01-01 In this new, authoritative textbook, internationally recognized metadata experts Zeng and Qin have created a comprehensive primer for advanced undergraduate, graduate, or continuing education courses in information organization, information technology, cataloging, digital libraries, electronic archives, and, of course, metadata. Instructors seeking a text that covers the theory as well as the how-to's of application design, implementation, and evaluation will find it here. An outcome-based approach lets learners with different orientations adapt their new knowledge and skills to any domain. Examples and practice problems focus on tasks typical to all metadata application projects. Other useful features include sample problems with solutions, quizzes, hands-on tutorials, and a recommended reading list at the end of each chapter. A companion digital library on CD-ROM for instructors includes

quizzes, answer keys, and additional exercises. An ideal classroom tool, this book works equally well for self-guided study. Individual modules can stand alone, for reference on an as-needed basis, when transitioning from traditional cataloging to compilations of metadata for locally created resources and websites, for example. Or you can study metadata systematically, module by module. Regardless of your approach, this book is the ideal guide to metadata for both students and working information professionals.

The Intellectual Foundation of Information Organization Elaine Svenonius 2009-01-30 Integrating the disparate disciplines of descriptive cataloging, subject cataloging, indexing, and classification, the book adopts a conceptual framework that views the process of organizing information as the use of a special language of description called a bibliographic language. Instant electronic access to digital information is the single most distinguishing attribute of the information age. The elaborate retrieval mechanisms that support such access are a product of technology. But technology is not enough. The effectiveness of a system for accessing information is a direct function of the intelligence put into organizing it. Just as the practical field of engineering has theoretical physics as its underlying base, the design of systems for organizing information rests on an intellectual foundation. The subject of this book is the systematized body of knowledge that constitutes this foundation. Integrating the disparate disciplines of descriptive cataloging, subject cataloging, indexing, and classification, the book adopts a conceptual framework that views the process of organizing information as the use of a special language of description called a bibliographic language. The book is divided into two parts. The first part is an analytic discussion of the intellectual foundation of information organization. The second part moves from generalities to particulars, presenting an overview of three bibliographic languages: work languages, document languages, and subject languages. It looks at these languages in terms of their vocabulary, semantics, and syntax. The book is written in an exceptionally clear style, at a level that makes it understandable to those outside the discipline of library and information science.

Crowdsourcing Daren C. Brabham 2013-05-10 A concise introduction to crowdsourcing that goes beyond social media buzzwords to explain what crowdsourcing really is and how it works. Ever since the term "crowdsourcing" was coined in 2006 by Wired writer Jeff Howe, group activities ranging from the creation of the Oxford English Dictionary to the choosing of new colors for M&Ms have been labeled with this most buzz-generating of media buzzwords. In this accessible but authoritative account, grounded in the empirical literature, Daren Brabham explains what crowdsourcing is, what it is not, and how it works. Crowdsourcing, Brabham tells us, is an online, distributed problem solving and production model that leverages the collective intelligence of online communities for specific purposes set forth by a crowdsourcing organization—corporate, government, or volunteer. Uniquely, it combines a bottom-up, open, creative process with top-down organizational goals. Crowdsourcing is not open source production, which lacks the top-down component; it is not a market research survey that offers participants a short list of choices; and it is qualitatively different from predigital open innovation and collaborative production processes, which lacked the speed, reach, rich capability, and lowered barriers to entry enabled by the Internet. Brabham describes the intellectual roots of the idea of crowdsourcing in such concepts as collective intelligence, the wisdom of crowds, and distributed computing. He surveys the major issues in crowdsourcing, including crowd motivation, the misconception of the amateur participant, crowdfunding, and the danger of "crowdsploitation" of volunteer labor, citing real-world examples from Threadless, InnoCentive, and other organizations. And he considers the future of crowdsourcing in both theory and practice, describing its possible roles in journalism, governance, national security, and science and health.

Information and Society Michael Buckland 2017-03-03 A short, informal account of our ever-increasing dependence on a complex multiplicity of messages, records, documents, and data. We live in an information society, or so we are often told. But what does that mean? This volume in the MIT Press Essential Knowledge series offers a concise, informal account of the ways in which information and society are related and of our ever-increasing dependence on a complex multiplicity of messages, records, documents, and data. Using information in its everyday, nonspecialized sense, Michael Buckland explores the influence of information on what we know, the role of communication and recorded information in our daily lives, and the difficulty (or ease) of finding information. He shows that all this involves human perception, social behavior, changing technologies, and issues of trust. Buckland argues that every society is an "information society"; a "non-information society" would be a contradiction in terms. But the shift from oral and gestural communication to documents, and the wider use of documents facilitated by new technologies, have made our society particularly information intensive. Buckland describes the rising flood of data, documents, and records, outlines the dramatic long-term growth of documents, and traces the rise of techniques to cope with them. He examines the physical manifestation of information as documents, the emergence of data sets, and how documents and data are discovered and used. He explores what individuals and societies do with information; offers a basic summary of how collected documents are arranged and described; considers the nature of naming; explains the uses of metadata; and evaluates selection methods, considering relevance, recall, and precision.

Spatial Computing Shashi Shekhar 2020-02-18 An accessible guide to the ideas and technologies underlying such applications as GPS, Google Maps, Pokémon Go, ride-sharing, driverless cars, and drone surveillance. Billions of people around the globe use various applications of spatial computing daily—by using a ride-sharing app, GPS, the e911 system, social media check-ins, even Pokémon Go. Scientists and researchers use spatial computing to track diseases, map the bottom of the oceans, chart the behavior of endangered species, and create election maps in real time. Drones and driverless cars use a variety of spatial computing technologies. Spatial computing works by understanding the physical world, knowing and communicating our relation to places in that world, and navigating through those places. It has changed our lives and infrastructures profoundly, marking a significant shift in how we make our way in the world. This volume in the MIT Essential Knowledge series explains the technologies and ideas behind spatial computing. The book offers accessible descriptions of GPS and location-based services, including the use of Wi-Fi, Bluetooth, and RFID for position determination out of satellite range; remote sensing, which uses satellite and aerial platforms to monitor such varied phenomena as global food production, the effects of climate change, and subsurface natural resources on other planets; geographic information systems (GIS), which store, analyze, and visualize spatial data; spatial databases, which store multiple forms of spatial data; and spatial statistics and spatial data science, used to analyze location-related data.

Software Studies Roger F. Malina 2008 This collection of short expository, critical and speculative texts offers a field guide to the cultural, political, social and aesthetic impact of software. Experts from a range of disciplines each take a key topic in software and the understanding of software, such as algorithms and logical structures.

The Discipline of Organizing: Professional Edition Robert J. Glushko 2014-08-25 Note about this ebook: This ebook exploits many advanced capabilities with images, hypertext, and interactivity and is optimized for EPUB3-compliant book readers, especially Apple's iBooks and browser plugins. These features may not work on all ebook readers. We organize things. We organize

information, information about things, and information about information. Organizing is a fundamental issue in many professional fields, but these fields have only limited agreement in how they approach problems of organizing and in what they seek as their solutions. The Discipline of Organizing synthesizes insights from library science, information science, computer science, cognitive science, systems analysis, business, and other disciplines to create an Organizing System for understanding organizing. This framework is robust and forward-looking, enabling effective sharing of insights and design patterns between disciplines that weren't possible before. The Professional Edition includes new and revised content about the active resources of the "Internet of Things," and how the field of Information Architecture can be viewed as a subset of the discipline of organizing. You'll find: 600 tagged endnotes that connect to one or more of the contributing disciplines Nearly 60 new pictures and illustrations Links to cross-references and external citations Interactive study guides to test on key points The Professional Edition is ideal for practitioners and as a primary or supplemental text for graduate courses on information organization, content and knowledge management, and digital collections. FOR INSTRUCTORS: Supplemental materials (lecture notes, assignments, exams, etc.) are available at http://disciplineoforganizing.org. FOR STUDENTS: Make sure this is the edition you want to buy. There's a newer one and maybe your instructor has adopted that one instead.

Fake Photos Hany Farid 2019-09-10 A concise and accessible guide to techniques for detecting doctored and fake images in photographs and digital media. Stalin, Mao, Hitler, Mussolini, and other dictators routinely doctored photographs so that the images aligned with their messages. They erased people who were there, added people who were not, and manipulated backgrounds. They knew if they changed the visual record, they could change history. Once, altering images required hours in the darkroom; today, it can be done with a keyboard and mouse. Because photographs are so easily faked, fake photos are everywhere—supermarket tabloids, fashion magazines, political ads, and social media. How can we tell if an image is real or false? In this volume in the MIT Press Essential Knowledge series, Hany Farid offers a concise and accessible guide to techniques for detecting doctored and fake images in photographs and digital media. Farid, an expert in photo forensics, has spent two decades developing techniques for authenticating digital images. These techniques model the entire image-creation process in order to find the digital disruption introduced by manipulation of the image. Each section of the book describes a different technique for analyzing an image, beginning with those requiring minimal technical expertise and advancing to those at intermediate and higher levels. There are techniques for, among other things, reverse image searches, metadata analysis, finding image imperfections introduced by JPEG compression, image cloning, tracing pixel patterns, and detecting images that are computer generated. In each section, Farid describes the techniques, explains when they should be applied, and offers examples of image analysis.

Deep Learning John D. Kelleher 2019-09-10 An accessible introduction to the artificial intelligence technology that enables computer vision, speech recognition, machine translation, and driverless cars. Deep learning is an artificial intelligence technology that enables computer vision, speech recognition in mobile phones, machine translation, AI games, driverless cars, and other applications. When we use consumer products from Google, Microsoft, Facebook, Apple, or Baidu, we are often interacting with a deep learning system. In this volume in the MIT Press Essential Knowledge series, computer scientist John Kelleher offers an accessible and concise but comprehensive introduction to the fundamental technology at the heart of the artificial intelligence revolution. Kelleher explains that deep learning enables data-driven decisions by identifying and extracting patterns from large datasets; its ability to learn from complex data makes deep learning ideally suited to take advantage of the rapid growth in big data and computational power. Kelleher also explains some of the basic concepts in deep learning, presents a history of advances in the field, and discusses the current state of the art. He describes the most important deep learning architectures, including autoencoders, recurrent neural networks, and long short-term networks, as well as such recent developments as Generative Adversarial Networks and capsule networks. He also provides a comprehensive (and comprehensible) introduction to the two fundamental algorithms in deep learning: gradient descent and backpropagation. Finally, Kelleher considers the future of deep learning—major trends, possible developments, and significant challenges.

Discover Digital Libraries Iris Xie 2016-07-26 Discover Digital Libraries: Theory and Practice is a book that integrates both research and practice concerning digital library development, use, preservation, and evaluation. The combination of current research and practical guidelines is a unique strength of this book. The authors bring in-depth expertise on different digital library issues and synthesize theoretical and practical perspectives relevant to researchers, practitioners, and students. The book presents a comprehensive overview of the different approaches and tools for digital library development, including discussions of the social and legal issues associated with digital libraries. Readers will find current research and the best practices of digital libraries, providing both US and international perspectives on the development of digital libraries and their components, including collection, digitization, metadata, interface design, sustainability, preservation, retrieval, and evaluation of digital libraries. Offers an overview of digital libraries and the conceptual and practical understanding of digital libraries Presents the lifecycle of digital library design, use, preservation and evaluation, including collection development, digitization of static and multimedia resources, metadata, digital library development and interface design, digital information searching, digital preservation, and digital library evaluation Synthesizes current research and the best practices of digital libraries, providing both US and international perspectives on the development of digital libraries Introduces new developments in the area of digital libraries, such as large-scale digital libraries, social media applications in digital libraries, multilingual digital libraries, digital curation, linked data, rapid capture, guidelines for the digitization of multimedia resources Highlights the impact, challenges, suggestions for overcoming these challenges, and trends of present and future development of digital libraries Offers a comprehensive bibliography for each chapter

Theater as Data Miguel Escobar Varela 2021-08-02 In Theater as Data, Miguel Escobar Varela explores the use of computational methods and digital data in theater research. He considers the implications of these new approaches, and explains the roles that statistics and visualizations play. Reflecting on recent debates in the humanities, the author suggests that there are two ways of using data, both of which have a place in theater research. Data-driven methods are closer to the pursuit of verifiable results common in the sciences; and data-assisted methods are closer to the interpretive traditions of the humanities. The book surveys four major areas within theater scholarship: texts (not only playscripts but also theater reviews and program booklets); relationships (both the links between fictional characters and the collaborative networks of artists and producers); motion (the movement of performers and objects on stage); and locations (the coordinates of performance events, venues, and touring circuits). Theater as Data examines important contributions to theater studies from similar computational research, including in classical French drama, collaboration networks in Australian theater, contemporary Portuguese choreography, and global productions of Ibsen. This overview is complemented by short descriptions of the author's own

work in the computational analysis of theater practices in Singapore and Indonesia. The author ends by considering the future of computational theater research, underlining the importance of open data and digital sustainability practices, and encouraging readers to consider the benefits of learning to code. A web companion offers illustrative data, programming tutorials, and videos.

Metadata Richard Gartner 2016-08-12 This book offers a comprehensive guide to the world of metadata, from its origins in the ancient cities of the Middle East, to the Semantic Web of today. The author takes us on a journey through the centuries-old history of metadata up to the modern world of crowdsourcing and Google, showing how metadata works and what it is made of. The author explores how it has been used ideologically and how it can never be objective. He argues how central it is to human cultures and the way they develop. Metadata: Shaping Knowledge from Antiquity to the Semantic Web is for all readers with an interest in how we humans organize our knowledge and why this is important. It is suitable for those new to the subject as well as those know its basics. It also makes an excellent introduction for students of information science and librarianship.

Neuroplasticity Moheb Costandi 2016-08-16 The real story of how our brains and nervous systems change throughout our lifetimes—with or without "brain training." Fifty years ago, neuroscientists thought that a mature brain was fixed like a fly in amber, unable to change. Today, we know that our brains and nervous systems change throughout our lifetimes. This concept of neuroplasticity has captured the imagination of a public eager for self-improvement—and has inspired countless Internet entrepreneurs who peddle dubious "brain training" games and apps. In this book, Moheb Costandi offers a concise and engaging overview of neuroplasticity for the general reader, describing how our brains change continuously in response to our actions and experiences. Costandi discusses key experimental findings, and describes how our thinking about the brain has evolved over time. He explains how the brain changes during development, and the "synaptic pruning" that takes place before brain maturity. He shows that adult brains can grow new cells (citing, among many other studies, research showing that sexually mature male canaries learn a new song every year). He describes the kind of brain training that can bring about improvement in brain function. It's not gadgets and games that promise to "rewire your brain" but such sustained cognitive tasks as learning a musical instrument or a new language. (Costandi also notes that London cabbies increase their gray matter after rigorous training in their city's complicated streets.) He tells how brains compensate after stroke or injury; describes addiction and pain as maladaptive forms of neuroplasticity; and considers brain changes that accompany childhood, adolescence, parenthood, and aging. Each of our brains is custom-built. Neuroplasticity is at the heart of what makes us human.

Knowledge Unbound Peter Suber 2016-04-06 Influential writings make the case for open access to research, explore its implications, and document the early struggles and successes of the open access movement. Peter Suber has been a leading advocate for open access since 2001 and has worked full time on issues of open access since 2003. As a professor of philosophy during the early days of the internet, he realized its power and potential as a medium for scholarship. As he writes now, "it was like an asteroid crash, fundamentally changing the environment, challenging dinosaurs to adapt, and challenging all of us to figure out whether we were dinosaurs." When Suber began putting his writings and course materials online for anyone to use for any purpose, he soon experienced the benefits of that wider exposure. In 2001, he started a newsletter—the Free Online Scholarship Newsletter, which later became the SPARC Open Access Newsletter—in which he explored the implications of open access for research and scholarship. This book offers a selection of some of Suber's most significant and influential writings on open access from 2002 to 2010. In these texts, Suber makes the case for open access to research; answers common questions, objections, and misunderstandings; analyzes policy issues; and documents the growth and evolution of open access during its most critical early decade.

Self-Tracking Gina Neff 2016-06-24 What happens when people turn their everyday experience into data: an introduction to the essential ideas and key challenges of self-tracking. People keep track. In the eighteenth century, Benjamin Franklin kept charts of time spent and virtues lived up to. Today, people use technology to self-track: hours slept, steps taken, calories consumed, medications administered. Ninety million wearable sensors were shipped in 2014 to help us gather data about our lives. This book examines how people record, analyze, and reflect on this data, looking at the tools they use and the communities they become part of. Gina Neff and Dawn Nafus describe what happens when people turn their everyday experience—in particular, health and wellness-related experience—into data, and offer an introduction to the essential ideas and key challenges of using these technologies. They consider self-tracking as a social and cultural phenomenon, describing not only the use of data as a kind of mirror of the self but also how this enables people to connect to, and learn from, others. Neff and Nafus consider what's at stake: who wants our data and why; the practices of serious self-tracking enthusiasts; the design of commercial self-tracking technology; and how self-tracking can fill gaps in the healthcare system. Today, no one can lead an entirely untracked life. Neff and Nafus show us how to use data in a way that empowers and educates.

Data Feminism Catherine D'Ignazio 2020-03-31 A new way of thinking about data science and data ethics that is informed by the ideas of intersectional feminism. Today, data science is a form of power. It has been used to expose injustice, improve health outcomes, and topple governments. But it has also been used to discriminate, police, and surveil. This potential for good, on the one hand, and harm, on the other, makes it essential to ask: Data science by whom? Data science for whom? Data science with whose interests in mind? The narratives around big data and data science are overwhelmingly white, male, and techno-heroic. In Data Feminism, Catherine D'Ignazio and Lauren Klein present a new way of thinking about data science and data ethics—one that is informed by intersectional feminist thought. Illustrating data feminism in action, D'Ignazio and Klein show how challenges to the male/female binary can help challenge other hierarchical (and empirically wrong) classification systems. They explain how, for example, an understanding of emotion can expand our ideas about effective data visualization, and how the concept of invisible labor can expose the significant human efforts required by our automated systems. And they show why the data never, ever "speak for themselves." Data Feminism offers strategies for data scientists seeking to learn how feminism can help them work toward justice, and for feminists who want to focus their efforts on the growing field of data science. But Data Feminism is about much more than gender. It is about power, about who has it and who doesn't, and about how those differentials of power can be challenged and changed.

Information and Society Michael Buckland 2017-03-03 A short, informal account of our ever-increasing dependence on a complex multiplicity of messages, records, documents, and data. We live in an information society, or so we are often told. But what does that mean? This volume in the MIT Press Essential Knowledge series offers a concise, informal account of the ways in which information and society are related and of our ever-increasing dependence on a complex multiplicity of messages, records, documents, and data. Using information in its everyday, nonspecialized sense, Michael Buckland explores the influence of information on what we know, the role of communication and recorded information in our daily lives, and the difficulty (or ease) of finding information. He shows that all this involves human perception, social behavior, changing technologies, and issues of trust. Buckland argues that every society is an "information

society"; a "non-information society" would be a contradiction in terms. But the shift from oral and gestural communication to documents, and the wider use of documents facilitated by new technologies, have made our society particularly information intensive. Buckland describes the rising flood of data, documents, and records, outlines the dramatic long-term growth of documents, and traces the rise of techniques to cope with them. He examines the physical manifestation of information as documents, the emergence of data sets, and how documents and data are discovered and used. He explores what individuals and societies do with information; offers a basic summary of how collected documents are arranged and described; considers the nature of naming; explains the uses of metadata; and evaluates selection methods, considering relevance, recall, and precision.

Librarian's Handbook for Seeking, Writing, and Managing Grants Sylvia D. Hall-Ellis 2011-05-18 Learn the dynamics of the grant-seeking process, including proposal writing and grant management, for public, school, and academic librarians. • A bibliography • A glossary

Folksonomies. Indexing and Retrieval in Web 2.0 Isabella Peters 2009-12-23 Kollaborative Informationsdienste im Web 2.0 werden von den Internetnutzern nicht nur dazu genutzt, digitale Informationsressourcen zu produzieren, sondern auch, um sie inhaltlich mit eigenen Schlagworten, sog. Tags, zu erschließen. Dabei müssen die Nutzer nicht wie bei Bibliothekskatalogen auf Regeln achten. Die Menge an nutzergenerierten Tags innerhalb eines Kollaborativen Informationsdienstes wird als Folksonomy bezeichnet. Die Folksonomies dienen den Nutzern zum Wiederauffinden eigener Ressourcen und für die Recherche nach fremden Ressourcen. Das Buch beschäftigt sich mit Kollaborativen Informationsdiensten, Folksonomies als Methode der Wissensrepräsentation und als Werkzeug des Information Retrievals. Pluspunkte In der Forschung und im Web 2.0 stark diskutiertes Thema Einzige systematische Aufbereitung aus informationswissenschaftlicher Sicht und ganzheitliche Betrachtung der Folksonomies als Methode der Wissensrepräsentation und des Information Retrievals Grundlagenwerk für Folksonomies

Practical Data Science for Information Professionals David Stuart 2020-07-24 Practical Data Science for Information Professionals provides an accessible introduction to a potentially complex field, providing readers with an overview of data science and a framework for its application. It provides detailed examples and analysis on real data sets to explore the basics of the subject in three principle areas: clustering and social network analysis; predictions and forecasts; and text analysis and mining. As well as highlighting a wealth of user-friendly data science tools, the book also includes some example code in two of the most popular programming languages (R and Python) to demonstrate the ease with which the information professional can move beyond the graphical user interface and achieve significant analysis with just a few lines of code. After reading, readers will understand: · the growing importance of data science · the role of the information professional in data science · some of the most important tools and methods that information professionals can use. Bringing together the growing importance of data science and the increasing role of information professionals in the management and use of data, Practical Data Science for Information Professionals will provide a practical introduction to the topic specifically designed for the information community. It will appeal to librarians and information professionals all around the world, from large academic libraries to small research libraries. By focusing on the application of open source software, it aims to reduce barriers for readers to use the lessons learned within.

Sustainability Kent E. Portney 2015-10-16 A concise and accessible examination of sustainability in a range of contemporary contexts, from economic development to government policy. The word "sustainability" has been connected to everything from a certain kind of economic development to corporate promises about improved supply sourcing. But despite the apparent ubiquity of the term, the concept of sustainability has come to mean a number of specific things. In this accessible guide to the meanings of sustainability, Kent Portney describes the evolution of the idea and examines its application in a variety of contemporary contexts—from economic growth and consumption to government policy and urban planning. Portney takes as his starting point the 1987 definition by the World Commission on Environment and Development of sustainability as economic development activity that "meets the needs of the present without compromising the ability of future generations to meet their own needs." At its heart, Portney explains, sustainability focuses on the use and depletion of natural resources. It is not the same as environmental protection or natural resource conservation; it is more about finding some sort of steady state so that the earth can support both human population and economic growth. Portney looks at political opposition to the promotion of sustainability, which usually questions the need for sustainability or calls its costs unacceptable; collective and individual consumption of material goods and resources and to what extent they must be curtailed to achieve sustainability; the role of the private sector, and the co-opting of sustainability by corporations; government policy on sustainability at the international, national, and subnational levels; and how cities could become models for sustainability action.

Annotation Remi H. Kalir 2021-04-06 An introduction to annotation as a genre--a synthesis of reading, thinking, writing, and communication--and its significance in scholarship and everyday life. Annotation--the addition of a note to a text--is an everyday and social activity that provides information, shares commentary, sparks conversation, expresses power, and aids learning. It helps mediate the relationship between reading and writing. This volume in the MIT Press Essential Knowledge series offers an introduction to annotation and its literary, scholarly, civic, and everyday significance across historical and contemporary contexts. It approaches annotation as a genre--a synthesis of reading, thinking, writing, and communication--and offer examples of annotation that range from medieval rubrication and early book culture to data labeling and online reviews.

Memes in Digital Culture Limor Shifman 2013-10-04 Taking "Gangnam Style" seriously: what Internet memes can tell us about digital culture. In December 2012, the exuberant video "Gangnam Style" became the first YouTube clip to be viewed more than one billion times. Thousands of its viewers responded by creating and posting their own variations of the video—"Mitt Romney Style," "NASA Johnson Style," "Egyptian Style," and many others. "Gangnam Style" (and its attendant parodies, imitations, and derivations) is one of the most famous examples of an Internet meme: a piece of digital content that spreads quickly around the web in various iterations and becomes a shared cultural experience. In this book, Limor Shifman investigates Internet memes and what they tell us about digital culture. Shifman discusses a series of well-known Internet memes—including "Leave Britney Alone," the pepper-spraying cop, LOLCats, Scumbag Steve, and Occupy Wall Street's "We Are the 99 Percent." She offers a novel definition of Internet memes: digital content units with common characteristics, created with awareness of each other, and circulated, imitated, and transformed via the Internet by many users. She differentiates memes from virals; analyzes what makes memes and virals successful; describes popular meme genres; discusses memes as new modes of political participation in democratic and nondemocratic regimes; and examines memes as agents of globalization. Memes, Shifman argues, encapsulate some of the most fundamental aspects of the Internet in general and of the participatory Web 2.0 culture in particular. Internet memes may be entertaining, but in this book Limor Shifman makes

a compelling argument for taking them seriously.

The Mind-Body Problem Jonathan Westphal 2016-09-30 An introduction to the mind–body problem, covering all the proposed solutions and offering a powerful new one. Philosophers from Descartes to Kripke have struggled with the glittering prize of modern and contemporary philosophy: the mind-body problem. The brain is physical. If the mind is physical, we cannot see how. If we cannot see how the mind is physical, we cannot see how it can interact with the body. And if the mind is not physical, it cannot interact with the body. Or so it seems. In this book the philosopher Jonathan Westphal examines the mind-body problem in detail, laying out the reasoning behind the solutions that have been offered in the past and presenting his own proposal. The sharp focus on the mind-body problem, a problem that is not about the self, or consciousness, or the soul, or anything other than the mind and the body, helps clarify both problem and solutions. Westphal outlines the history of the mind-body problem, beginning with Descartes. He describes mind-body dualism, which claims that the mind and the body are two different and separate things, nonphysical and physical, and he also examines physicalist theories of mind; antimaterialism, which proposes limits to physicalism and introduces the idea of qualia; and scientific theories of consciousness. Finally, Westphal examines the largely forgotten neutral monist theories of mind and body, held by Ernst Mach, William James, and Bertrand Russell, which attempt neither to extract mind from matter nor to dissolve matter into mind. Westphal proposes his own version of neutral monism. This version is unique among neutral monist theories in offering an account of mind-body interaction.

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