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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.

Why Have Children? - Christine Overall
2012-02-03

A wide-ranging exploration of whether or not choosing to procreate can be morally justified—and if so, how. In contemporary Western society, people are more often called upon to justify the choice not to have children than they are to supply reasons for having them. In this book, Christine Overall maintains that the burden of proof should be reversed: that the choice to have children calls for more careful justification and reasoning than the choice not to. Arguing that the choice to have children is not just a prudential or pragmatic decision but one with ethical repercussions, Overall offers a wide-ranging exploration of how we might think

systematically and deeply about this fundamental aspect of human life. Writing from a feminist perspective, she also acknowledges the inevitably gendered nature of the decision; the choice has different meanings, implications, and risks for women than it has for men. After considering a series of ethical approaches to procreation, and finding them inadequate or incomplete, Overall offers instead a novel argument. Exploring the nature of the biological parent-child relationship—which is not only genetic but also psychological, physical, intellectual, and moral—she argues that the formation of that relationship is the best possible reason for choosing to have a child.

Spatial Hearing - Jens Blauert 1997

The field of spatial hearing has exploded in the decade or so since Jens Blauert's classic work on acoustics was first published in English. This revised edition adds a new chapter that describes developments in such areas as auditory virtual reality (an important field of

application that is based mainly on the physics of spatial hearing), binaural technology (modeling speech enhancement by binaural hearing), and spatial sound-field mapping. The chapter also includes recent research on the precedence effect that provides clear experimental evidence that cognition plays a significant role in spatial hearing. The remaining four chapters in this comprehensive reference cover auditory research procedures and psychometric methods, spatial hearing with one sound source, spatial hearing with multiple sound sources and in enclosed spaces, and progress and trends from 1972 (the first German edition) to 1983 (the first English edition) -- work that includes research on the physics of the external ear, and the application of signal processing theory to modeling the spatial hearing process. There is an extensive bibliography of more than 900 items.

Democratizing Innovation - Eric Von Hippel
2006-02-17

The process of user-centered innovation: how it can benefit both users and manufacturers and how its emergence will bring changes in business models and in public policy. Innovation is rapidly becoming democratized. Users, aided by improvements in computer and communications technology, increasingly can develop their own new products and services. These innovating users—both individuals and firms—often freely share their innovations with others, creating user-innovation communities and a rich intellectual commons. In *Democratizing Innovation*, Eric von Hippel looks closely at this emerging system of user-centered innovation. He explains why and when users find it profitable to develop new products and services for themselves, and why it often pays users to reveal their innovations freely for the use of all. The trend toward democratized innovation can be seen in software and information products—most notably in the free and open-source software movement—but also in

physical products. Von Hippel's many examples of user innovation in action range from surgical equipment to surfboards to software security features. He shows that product and service development is concentrated among "lead users," who are ahead on marketplace trends and whose innovations are often commercially attractive. Von Hippel argues that manufacturers should redesign their innovation processes and that they should systematically seek out innovations developed by users. He points to businesses—the custom semiconductor industry is one example—that have learned to assist user-innovators by providing them with toolkits for developing new products. User innovation has a positive impact on social welfare, and von Hippel proposes that government policies, including R&D subsidies and tax credits, should be realigned to eliminate biases against it. The goal of a democratized user-centered innovation system, says von Hippel, is well worth striving for. An electronic

version of this book is available under a Creative Commons license.

Introduction to Computation and Programming Using Python, second edition

- John V. Guttag 2016-08-12

The new edition of an introductory text that teaches students the art of computational problem solving, covering topics ranging from simple algorithms to information visualization. This book introduces students with little or no prior programming experience to the art of computational problem solving using Python and various Python libraries, including PyLab. It provides students with skills that will enable them to make productive use of computational techniques, including some of the tools and techniques of data science for using computation to model and interpret data. The book is based on an MIT course (which became the most popular course offered through MIT's OpenCourseWare) and was developed for use not only in a conventional classroom but in a

massive open online course (MOOC). This new edition has been updated for Python 3, reorganized to make it easier to use for courses that cover only a subset of the material, and offers additional material including five new chapters. Students are introduced to Python and the basics of programming in the context of such computational concepts and techniques as exhaustive enumeration, bisection search, and efficient approximation algorithms. Although it covers such traditional topics as computational complexity and simple algorithms, the book focuses on a wide range of topics not found in most introductory texts, including information visualization, simulations to model randomness, computational techniques to understand data, and statistical techniques that inform (and misinform) as well as two related but relatively advanced topics: optimization problems and dynamic programming. This edition offers expanded material on statistics and machine learning and new chapters on Frequentist and

Bayesian statistics.

Introduction to Industrial Organization M.

B. Cabral 2000

This book provides an issue-driven introduction to industrial organization. Over the past twenty years, the study of industrial organization--the analysis of imperfectly competitive markets--has grown from a niche area of microeconomics to a key component of economics and of related disciplines such as finance, strategy, and marketing. This book provides an issue-driven introduction to industrial organization. It includes a vast array of examples, from both within and outside the United States. While formal in its approach, the book is written in a way that requires only basic mathematical training. Supplemental materials posted on the Web make more extensive use of algebra and calculus.

Introduction to Static Analysis - Xavier Rival

2020-02-11

A self-contained introduction to abstract

interpretation-based static analysis, an essential resource for students, developers, and users.

Static program analysis, or static analysis, aims to discover semantic properties of programs without running them. It plays an important role in all phases of development, including verification of specifications and programs, the synthesis of optimized code, and the refactoring and maintenance of software applications. This book offers a self-contained introduction to static analysis, covering the basics of both theoretical foundations and practical considerations in the use of static analysis tools. By offering a quick and comprehensive introduction for nonspecialists, the book fills a notable gap in the literature, which until now has consisted largely of scientific articles on advanced topics. The text covers the mathematical foundations of static analysis, including semantics, semantic abstraction, and computation of program invariants; more advanced notions and techniques, including

techniques for enhancing the cost-accuracy balance of analysis and abstractions for advanced programming features and answering a wide range of semantic questions; and techniques for implementing and using static analysis tools. It begins with background information and an intuitive and informal introduction to the main static analysis principles and techniques. It then formalizes the scientific foundations of program analysis techniques, considers practical aspects of implementation, and presents more advanced applications. The book can be used as a textbook in advanced undergraduate and graduate courses in static analysis and program verification, and as a reference for users, developers, and experts.

Introduction to Natural Language Processing
Jacob Eisenstein 2019-10-01

A survey of computational methods for understanding, generating, and manipulating human language, which offers a synthesis of

classical representations and algorithms with contemporary machine learning techniques. This textbook provides a technical perspective on natural language processing—methods for building computer software that understands, generates, and manipulates human language. It emphasizes contemporary data-driven approaches, focusing on techniques from supervised and unsupervised machine learning. The first section establishes a foundation in machine learning by building a set of tools that will be used throughout the book and applying them to word-based textual analysis. The second section introduces structured representations of language, including sequences, trees, and graphs. The third section explores different approaches to the representation and analysis of linguistic meaning, ranging from formal logic to neural word embeddings. The final section offers chapter-length treatments of three transformative applications of natural language processing: information extraction, machine

translation, and text generation. End-of-chapter exercises include both paper-and-pencil analysis and software implementation. The text synthesizes and distills a broad and diverse research literature, linking contemporary machine learning techniques with the field's linguistic and computational foundations. It is suitable for use in advanced undergraduate and graduate-level courses and as a reference for software engineers and data scientists. Readers should have a background in computer programming and college-level mathematics. After mastering the material presented, students will have the technical skill to build and analyze novel natural language processing systems and to understand the latest research in the field.

Turtle Geometry - Harold Abelson 1986-07-09
Turtle Geometry presents an innovative program of mathematical discovery that demonstrates how the effective use of personal computers can profoundly change the nature of a student's contact with mathematics. Using this book and a

few simple computer programs, students can explore the properties of space by following an imaginary turtle across the screen. The concept of turtle geometry grew out of the Logo Group at MIT. Directed by Seymour Papert, author of *Mindstorms*, this group has done extensive work with preschool children, high school students and university undergraduates.

Introduction to Algorithms Thomas H Cormen
2001

The first edition won the award for Best 1990 Professional and Scholarly Book in Computer Science and Data Processing by the Association of American Publishers. There are books on algorithms that are rigorous but incomplete and others that cover masses of material but lack rigor. *Introduction to Algorithms* combines rigor and comprehensiveness. The book covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers. Each chapter is relatively self-contained and can be used as a unit of study.

The algorithms are described in English and in a pseudocode designed to be readable by anyone who has done a little programming. The explanations have been kept elementary without sacrificing depth of coverage or mathematical rigor. The first edition became the standard reference for professionals and a widely used text in universities worldwide. The second edition features new chapters on the role of algorithms, probabilistic analysis and randomized algorithms, and linear programming, as well as extensive revisions to virtually every section of the book. In a subtle but important change, loop invariants are introduced early and used throughout the text to prove algorithm correctness. Without changing the mathematical and analytic focus, the authors have moved much of the mathematical foundations material from Part I to an appendix and have included additional motivational material at the beginning.

The Art of Failure - Jesper Juul 2013-02-22

An exploration of why we play video games despite the fact that we are almost certain to feel unhappy when we fail at them. We may think of video games as being "fun," but in *The Art of Failure*, Jesper Juul claims that this is almost entirely mistaken. When we play video games, our facial expressions are rarely those of happiness or bliss. Instead, we frown, grimace, and shout in frustration as we lose, or die, or fail to advance to the next level. Humans may have a fundamental desire to succeed and feel competent, but game players choose to engage in an activity in which they are nearly certain to fail and feel incompetent. So why do we play video games even though they make us unhappy? Juul examines this paradox. In video games, as in tragic works of art, literature, theater, and cinema, it seems that we want to experience unpleasantness even if we also dislike it. Reader or audience reaction to tragedy is often explained as catharsis, as a purging of negative emotions. But, Juul points out, this

doesn't seem to be the case for video game players. Games do not purge us of unpleasant emotions; they produce them in the first place. What, then, does failure in video game playing do? Juul argues that failure in a game is unique in that when you fail in a game, you (not a character) are in some way inadequate. Yet games also motivate us to play more, in order to escape that inadequacy, and the feeling of escaping failure (often by improving skills) is a central enjoyment of games. Games, writes Juul, are the art of failure: the singular art form that sets us up for failure and allows us to experience it and experiment with it. *The Art of Failure* is essential reading for anyone interested in video games, whether as entertainment, art, or education.

When Things Don't Fall Apart - Ilene Grabel
2017

An account of the significant though gradual, uneven, disconnected, ad hoc, and pragmatic innovations in global financial governance and

developmental finance induced by the global financial crisis. In *When Things Don't Fall Apart*, Ilene Grabel challenges the dominant view that the global financial crisis had little effect on global financial governance and developmental finance. Most observers discount all but grand, systemic ruptures in institutions and policy. Grabel argues instead that the global crisis induced inconsistent and ad hoc discontinuities in global financial governance and developmental finance that are now having profound effects on emerging market and developing economies. Grabel's chief normative claim is that the resulting incoherence in global financial governance is productive rather than debilitating. In the age of productive incoherence, a more complex, dense, fragmented, and pluripolar form of global financial governance is expanding possibilities for policy and institutional experimentation, policy space for economic and human development, financial stability and resilience,

and financial inclusion. Grabel draws on key theoretical commitments of Albert Hirschman to cement the case for the productivity of incoherence. Inspired by Hirschman, Grabel demonstrates that meaningful change often emerges from disconnected, erratic, experimental, and inconsistent adjustments in institutions and policies as actors pragmatically manage in an evolving world. Grabel substantiates her claims with empirically rich case studies that explore the effects of recent crises on networks of financial governance (such as the G-20); transformations within the IMF; institutional innovations in liquidity support and project finance from the national to the transregional levels; and the “rebranding” of capital controls. Grabel concludes with a careful examination of the opportunities and risks associated with the evolutionary transformations underway.

Introduction to Deep Learning Eugene Charniak 2019-01-29

A project-based guide to the basics of deep learning. This concise, project-driven guide to deep learning takes readers through a series of program-writing tasks that introduce them to the use of deep learning in such areas of artificial intelligence as computer vision, natural-language processing, and reinforcement learning. The author, a longtime artificial intelligence researcher specializing in natural-language processing, covers feed-forward neural nets, convolutional neural nets, word embeddings, recurrent neural nets, sequence-to-sequence learning, deep reinforcement learning, unsupervised models, and other fundamental concepts and techniques. Students and practitioners learn the basics of deep learning by working through programs in Tensorflow, an open-source machine learning framework. “I find I learn computer science material best by sitting down and writing programs,” the author writes, and the book reflects this approach. Each chapter includes a programming project,

exercises, and references for further reading. An early chapter is devoted to Tensorflow and its interface with Python, the widely used programming language. Familiarity with linear algebra, multivariate calculus, and probability and statistics is required, as is a rudimentary knowledge of programming in Python. The book can be used in both undergraduate and graduate courses; practitioners will find it an essential reference.

Reinforcement Learning, second edition -

Richard S. Sutton 2018-11-13

The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning,

Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies

chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

Introduction to Machine Learning - Ethem Alpaydin 2014-08-22

Introduction -- Supervised learning -- Bayesian decision theory -- Parametric methods -- Multivariate methods -- Dimensionality reduction -- Clustering -- Nonparametric methods -- Decision trees -- Linear discrimination -- Multilayer perceptrons -- Local models -- Kernel machines -- Graphical models -- Brief contents -- Hidden markov models -- Bayesian estimation -- Combining multiple learners -- Reinforcement learning -- Design and analysis of machine learning experiments.

After Access Jonathan Donner 2015-11-20
An expert considers the effects of a more mobile Internet on socioeconomic development and digital inclusion, examining both potentialities and constraints. Almost anyone with a \$40

mobile phone and a nearby cell tower can get online with an ease unimaginable just twenty years ago. An optimistic narrative has proclaimed the mobile phone as the device that will finally close the digital divide. Yet access and effective use are not the same thing, and the digital world does not run on mobile handsets alone. In *After Access*, Jonathan Donner examines the implications of the shift to a more mobile, more available Internet for the global South, particularly as it relates to efforts to promote socioeconomic development and broad-based inclusion in the global information society. Drawing on his own research in South Africa and India, as well as the burgeoning literature from the ICT4D (Internet and Communication Technologies for Development) and mobile communication communities, Donner introduces the "After Access Lens," a conceptual framework for understanding effective use of the Internet by those whose "digital repertoires" contain exclusively mobile devices. Donner argues that

both the potentialities and constraints of the shift to a more mobile Internet are important considerations for scholars and practitioners interested in Internet use in the global South.

Deep Learning - Ian Goodfellow 2016-11-10

An introduction to a broad range of topics in deep learning, covering mathematical and conceptual background, deep learning techniques used in industry, and research perspectives. “Written by three experts in the field, Deep Learning is the only comprehensive book on the subject.” —Elon Musk, cochair of OpenAI; cofounder and CEO of Tesla and SpaceX

Deep learning is a form of machine learning that enables computers to learn from experience and understand the world in terms of a hierarchy of concepts. Because the computer gathers knowledge from experience, there is no need for a human computer operator to formally specify all the knowledge that the computer needs. The hierarchy of concepts allows the computer to learn complicated concepts by building them out

of simpler ones; a graph of these hierarchies would be many layers deep. This book introduces a broad range of topics in deep learning. The text offers mathematical and conceptual background, covering relevant concepts in linear algebra, probability theory and information theory, numerical computation, and machine learning. It describes deep learning techniques used by practitioners in industry, including deep feedforward networks, regularization, optimization algorithms, convolutional networks, sequence modeling, and practical methodology; and it surveys such applications as natural language processing, speech recognition, computer vision, online recommendation systems, bioinformatics, and videogames. Finally, the book offers research perspectives, covering such theoretical topics as linear factor models, autoencoders, representation learning, structured probabilistic models, Monte Carlo methods, the partition function, approximate inference, and deep

generative models. Deep Learning can be used by undergraduate or graduate students planning careers in either industry or research, and by software engineers who want to begin using deep learning in their products or platforms. A website offers supplementary material for both readers and instructors.

Hermeneutica - Geoffrey Rockwell 2016-04-01
An introduction to text analysis using computer-assisted interpretive practices, accompanied by example essays that illustrate the use of these computational tools. The image of the scholar as a solitary thinker dates back at least to Descartes' Discourse on Method. But scholarly practices in the humanities are changing as older forms of communal inquiry are combined with modern research methods enabled by the Internet, accessible computing, data availability, and new media. Hermeneutica introduces text analysis using computer-assisted interpretive practices. It offers theoretical chapters about text analysis, presents a set of analytical tools

(called Voyant) that instantiate the theory, and provides example essays that illustrate the use of these tools. Voyant allows users to integrate interpretation into texts by creating hermeneutica—small embeddable “toys” that can be woven into essays published online or into such online writing environments as blogs or wikis. The book's companion website, Hermeneuti.ca, offers the example essays with both text and embedded interactive panels. The panels show results and allow readers to experiment with the toys themselves. The use of these analytical tools results in a hybrid essay: an interpretive work embedded with hermeneutical toys that can be explored for technique. The hermeneutica draw on and develop such common interactive analytics as word clouds and complex data journalism interactives. Embedded in scholarly texts, they create a more engaging argument. Moving between tool and text becomes another thread in a dynamic dialogue.

Certified Programming with Dependent Types - Adam Chlipala 2013-12-06

A handbook to the Coq software for writing and checking mathematical proofs, with a practical engineering focus. The technology of mechanized program verification can play a supporting role in many kinds of research projects in computer science, and related tools for formal proof-checking are seeing increasing adoption in mathematics and engineering. This book provides an introduction to the Coq software for writing and checking mathematical proofs. It takes a practical engineering focus throughout, emphasizing techniques that will help users to build, understand, and maintain large Coq developments and minimize the cost of code change over time. Two topics, rarely discussed elsewhere, are covered in detail: effective dependently typed programming (making productive use of a feature at the heart of the Coq system) and construction of domain-specific proof tactics. Almost every subject

covered is also relevant to interactive computer theorem proving in general, not just program verification, demonstrated through examples of verified programs applied in many different sorts of formalizations. The book develops a unique automated proof style and applies it throughout; even experienced Coq users may benefit from reading about basic Coq concepts from this novel perspective. The book also offers a library of tactics, or programs that find proofs, designed for use with examples in the book. Readers will acquire the necessary skills to reimplement these tactics in other settings by the end of the book. All of the code appearing in the book is freely available online.

Computer Games for Learning Richard E. Mayer 2014-07-11

A comprehensive and up-to-date investigation of what research shows about the educational value of computer games for learning. Many strong claims are made for the educational value of computer games, but there is a need for

systematic examination of the research evidence that might support such claims. This book fills that need by providing, a comprehensive and up-to-date investigation of what research shows about learning with computer games. Computer Games for Learning describes three genres of game research: the value-added approach, which compares the learning outcomes of students who learn with a base version of a game to those of students who learn with the base version plus an additional feature; the cognitive consequences approach, which compares learning outcomes of students who play an off-the-shelf computer game for extended periods to those of students who do not; and the media comparative approach, which compares the learning outcomes of students who learn material by playing a game to those of students who learn the same material using conventional media. After introductory chapters that describe the rationale and goals of learning game research as well as the relevance of cognitive science to

learning with games, the book offers examples of research in all three genres conducted by the author and his colleagues at the University of California, Santa Barbara; meta-analyses of published research; and suggestions for future research in the field. The book is essential reading for researchers and students of educational games, instructional designers, learning-game developers, and anyone who wants to know what the research has to say about the educational effectiveness of computer games.

Numbered Lives - Jacqueline Wernimont
2019-01-01

A feminist media history of quantification, uncovering the stories behind the tools and technologies we use to count, measure, and weigh our lives and realities. Anglo-American culture has used media to measure and quantify lives for centuries. Historical journal entries map the details of everyday life, while death registers put numbers to life's endings. Today we count

our daily steps with fitness trackers and quantify births and deaths with digitized data. How are these present-day methods for measuring ourselves similar to those used in the past? In this book, Jacqueline Wernimont presents a new media history of western quantification, uncovering the stories behind the tools and technologies we use to count, measure, and weigh our lives and realities. *Numbered Lives* is the first book of its kind, a feminist media history that maps connections not only between past and present-day “quantum media” but between media tracking and long-standing systemic inequalities. Wernimont explores the history of the pedometer, mortality statistics, and the census in England and the United States to illuminate the entanglement of Anglo-American quantification with religious, imperial, and patriarchal paradigms. In Anglo-American culture, Wernimont argues, counting life and counting death are sides of the same coin—one that has always been used to render statistics of

life and death more valuable to corporate and state organizations. *Numbered Lives* enumerates our shared media history, helping us understand our digital culture and inheritance.

Concepts and Fuzzy Logic - Radim Bělohlávek 2011

In this work - both psychologists working on concepts and mathematicians working on fuzzy logic - reassess the usefulness of fuzzy logic for the psychology of concepts.

Probabilistic Machine Learning - Kevin P. Murphy 2022-03-01

A detailed and up-to-date introduction to machine learning, presented through the unifying lens of probabilistic modeling and Bayesian decision theory. This book offers a detailed and up-to-date introduction to machine learning (including deep learning) through the unifying lens of probabilistic modeling and Bayesian decision theory. The book covers mathematical background (including linear algebra and optimization), basic supervised

learning (including linear and logistic regression and deep neural networks), as well as more advanced topics (including transfer learning and unsupervised learning). End-of-chapter exercises allow students to apply what they have learned, and an appendix covers notation. Probabilistic Machine Learning grew out of the author's 2012 book, *Machine Learning: A Probabilistic Perspective*. More than just a simple update, this is a completely new book that reflects the dramatic developments in the field since 2012, most notably deep learning. In addition, the new book is accompanied by online Python code, using libraries such as scikit-learn, JAX, PyTorch, and Tensorflow, which can be used to reproduce nearly all the figures; this code can be run inside a web browser using cloud-based notebooks, and provides a practical complement to the theoretical topics discussed in the book. This introductory text will be followed by a sequel that covers more advanced topics, taking the same probabilistic approach.

An Introduction to the Event-Related Potential Technique, second edition - Steven J. Luck 2014-05-30

An essential guide to designing, conducting, and analyzing event-related potential (ERP) experiments, completely updated for this edition. The event-related potential (ERP) technique, in which neural responses to specific events are extracted from the EEG, provides a powerful noninvasive tool for exploring the human brain. This volume describes practical methods for ERP research along with the underlying theoretical rationale. It offers researchers and students an essential guide to designing, conducting, and analyzing ERP experiments. This second edition has been completely updated, with additional material, new chapters, and more accessible explanations. Freely available supplementary material, including several online-only chapters, offer expanded or advanced treatment of selected topics. The first half of the book presents essential background information,

describing the origins of ERPs, the nature of ERP components, and the design of ERP experiments. The second half of the book offers a detailed treatment of the main steps involved in conducting ERP experiments, covering such topics as recording the EEG, filtering the EEG and ERP waveforms, and quantifying amplitudes and latencies. Throughout, the emphasis is on rigorous experimental design and relatively simple analyses. New material in the second edition includes entire chapters devoted to components, artifacts, measuring amplitudes and latencies, and statistical analysis; updated coverage of recording technologies; concrete examples of experimental design; and many more figures. Online chapters cover such topics as overlap, localization, writing and reviewing ERP papers, and setting up and running an ERP lab.

Introduction to Algorithms, third edition -

Thomas H. Cormen 2009-07-31

The latest edition of the essential text and

professional reference, with substantial new material on such topics as vEB trees, multithreaded algorithms, dynamic programming, and edge-based flow. Some books on algorithms are rigorous but incomplete; others cover masses of material but lack rigor. Introduction to Algorithms uniquely combines rigor and comprehensiveness. The book covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers. Each chapter is relatively self-contained and can be used as a unit of study. The algorithms are described in English and in a pseudocode designed to be readable by anyone who has done a little programming. The explanations have been kept elementary without sacrificing depth of coverage or mathematical rigor. The first edition became a widely used text in universities worldwide as well as the standard reference for professionals. The second edition featured new chapters on the role of algorithms, probabilistic analysis and randomized

algorithms, and linear programming. The third edition has been revised and updated throughout. It includes two completely new chapters, on van Emde Boas trees and multithreaded algorithms, substantial additions to the chapter on recurrence (now called “Divide-and-Conquer”), and an appendix on matrices. It features improved treatment of dynamic programming and greedy algorithms and a new notion of edge-based flow in the material on flow networks. Many exercises and problems have been added for this edition. The international paperback edition is no longer available; the hardcover is available worldwide. *Teaching Computational Thinking* Maureen D. Neumann 2021-12-21

A guide for educators to incorporate computational thinking—a set of cognitive skills applied to problem solving—into a broad range of subjects. Computational thinking—a set of mental and cognitive tools applied to problem solving—is a fundamental skill that all of us (and

not just computer scientists) draw on. Educators have found that computational thinking enhances learning across a range of subjects and reinforces students’ abilities in reading, writing, and arithmetic. This book offers a guide for incorporating computational thinking into middle school and high school classrooms, presenting a series of activities, projects, and tasks that employ a range of pedagogical practices and cross a variety of content areas. As students problem solve, communicate, persevere, work as a team, and learn from mistakes, they develop a concrete understanding of the abstract principles used in computer science to create code and other digital artifacts. The book guides students and teachers to integrate computer programming with visual art and geometry, generating abstract expressionist-style images; construct topological graphs that represent the relationships between characters in such literary works as Harry Potter and the Sorcerer’s Stone and Romeo and Juliet;

apply Newtonian physics to the creation of computer games; and locate, analyze, and present empirical data relevant to social and political issues. Finally, the book lists a variety of classroom resources, including the programming languages Scratch (free to all) and CodeSters (free to teachers). An accompanying website contains the executable programs used in the book's activities.

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.

Bitcoin, Blockchain, and Cryptoassets -

Fabian Schar 2020-09-01

An introduction to cryptocurrencies and blockchain technology; a guide for practitioners and students. Bitcoin and blockchain enable the ownership of virtual property without the need for a central authority. Additionally, Bitcoin and other cryptocurrencies make up an entirely new class of assets that have the potential for fundamental change in the current financial system. This book offers an introduction to cryptocurrencies and blockchain technology from the perspective of monetary economics.

Assetization - Kean Birch 2020-07-14

How the asset—anything that can be controlled, traded, and capitalized as a revenue stream—has become the primary basis of technoscientific capitalism. In this book, scholars from a range of disciplines argue that the asset—meaning anything that can be controlled, traded, and capitalized as a revenue stream—has become the primary basis of technoscientific capitalism. An asset can be an object or an experience, a sum of money or a life form, a patent or a bodily function. A process of assetization prevails, imposing investment and return as the key rationale, and overtaking commodification and its speculative logic. Although assets can be bought and sold, the point is to get a durable economic rent from them rather than make a killing on the market. Assetization examines how assets are constructed and how a variety of things can be turned into assets, analyzing the interests, activities, skills, organizations, and relations entangled in this process. The contributors consider the assetization of

knowledge, including patents, personal data, and biomedical innovation; of infrastructure, including railways and energy; of nature, including mineral deposits, agricultural seeds, and “natural capital”; and of publics, including such public goods as higher education and “monetizable social ills.” Taken together, the chapters show the usefulness of assetization as an analytical tool and as an element in the critique of capitalism. Contributors Thomas Beauvisage, Kean Birch, Veit Braun, Natalia Buier, Béatrice Cointe, Paul Robert Gilbert, Hyo Yoon Kang, Les Levidow, Kevin Mellet, Sveta Milyaeva, Fabian Muniesa, Alain Nadaï, Daniel Neyland, Victor Roy, James W. Williams

Behavioral Insights - Michael Hallsworth
2020-09-01

The definitive introduction to the behavioral insights approach, which applies evidence about human behavior to practical problems. Our behavior is strongly influenced by factors that lie outside our conscious awareness, although we

tend to underestimate the power of this “automatic” side of our behavior. As a result, governments make ineffective policies, businesses create bad products, and individuals make unrealistic plans. In contrast, the behavioral insights approach applies evidence about actual human behavior—rather than assumptions about it—to practical problems. This volume in the MIT Press Essential Knowledge series, written by two leading experts in the field, offers an accessible introduction to behavioral insights, describing core features, origins, and practical examples. Since 2010, these insights have opened up new ways of addressing some of the biggest challenges faced by societies, changing the way that governments, businesses, and nonprofits work in the process. This book shows how the approach is grounded in a concern with practical problems, the use of evidence about human behavior to address those problems, and experimentation to evaluate the impact of the

solutions. It gives an overview of the approach's origins in psychology and behavioral economics, its early adoption by the UK's pioneering “nudge unit,” and its recent expansion into new areas. The book also provides examples from across different policy areas and guidance on how to run a behavioral insights project. Finally, the book outlines the limitations and ethical implications of the approach, and what the future holds for this fast-moving area.

Machine Learners - Adrian Mackenzie
2017-11-16

If machine learning transforms the nature of knowledge, does it also transform the practice of critical thought? Machine learning—programming computers to learn from data—has spread across scientific disciplines, media, entertainment, and government. Medical research, autonomous vehicles, credit transaction processing, computer gaming, recommendation systems, finance, surveillance, and robotics use machine learning. Machine

learning devices (sometimes understood as scientific models, sometimes as operational algorithms) anchor the field of data science. They have also become mundane mechanisms deeply embedded in a variety of systems and gadgets. In contexts from the everyday to the esoteric, machine learning is said to transform the nature of knowledge. In this book, Adrian Mackenzie investigates whether machine learning also transforms the practice of critical thinking. Mackenzie focuses on machine learners—either humans and machines or human-machine relations—situated among settings, data, and devices. The settings range from fMRI to Facebook; the data anything from cat images to DNA sequences; the devices include neural networks, support vector machines, and decision trees. He examines specific learning algorithms—writing code and writing about code—and develops an archaeology of operations that, following Foucault, views machine learning as a form of

knowledge production and a strategy of power. Exploring layers of abstraction, data infrastructures, coding practices, diagrams, mathematical formalisms, and the social organization of machine learning, Mackenzie traces the mostly invisible architecture of one of the central zones of contemporary technological cultures. Mackenzie's account of machine learning locates places in which a sense of agency can take root. His archaeology of the operational formation of machine learning does not unearth the footprint of a strategic monolith but reveals the local tributaries of force that feed into the generalization and plurality of the field.

Machine Learning - Kevin P. Murphy 2012-08-24

A comprehensive introduction to machine learning that uses probabilistic models and inference as a unifying approach. Today's Web-enabled deluge of electronic data calls for automated methods of data analysis. Machine learning provides these, developing methods

that can automatically detect patterns in data and then use the uncovered patterns to predict future data. This textbook offers a comprehensive and self-contained introduction to the field of machine learning, based on a unified, probabilistic approach. The coverage combines breadth and depth, offering necessary background material on such topics as probability, optimization, and linear algebra as well as discussion of recent developments in the field, including conditional random fields, L1 regularization, and deep learning. The book is written in an informal, accessible style, complete with pseudo-code for the most important algorithms. All topics are copiously illustrated with color images and worked examples drawn from such application domains as biology, text processing, computer vision, and robotics. Rather than providing a cookbook of different heuristic methods, the book stresses a principled model-based approach, often using the language of graphical models to specify models in a

concise and intuitive way. Almost all the models described have been implemented in a MATLAB software package—PMTK (probabilistic modeling toolkit)—that is freely available online. The book is suitable for upper-level undergraduates with an introductory-level college math background and beginning graduate students.

Machine Learning for Data Streams, Albert Bifet 2018-03-16

A hands-on approach to tasks and techniques in data stream mining and real-time analytics, with examples in MOA, a popular freely available open-source software framework. Today many information sources—including sensor networks, financial markets, social networks, and healthcare monitoring—are so-called data streams, arriving sequentially and at high speed. Analysis must take place in real time, with partial data and without the capacity to store the entire data set. This book presents algorithms and techniques used in data stream mining and

real-time analytics. Taking a hands-on approach, the book demonstrates the techniques using MOA (Massive Online Analysis), a popular, freely available open-source software framework, allowing readers to try out the techniques after reading the explanations. The book first offers a brief introduction to the topic, covering big data mining, basic methodologies for mining data streams, and a simple example of MOA. More detailed discussions follow, with chapters on sketching techniques, change, classification, ensemble methods, regression, clustering, and frequent pattern mining. Most of these chapters include exercises, an MOA-based lab session, or both. Finally, the book discusses the MOA software, covering the MOA graphical user interface, the command line, use of its API, and the development of new methods within MOA. The book will be an essential reference for readers who want to use data stream mining as a tool, researchers in innovation or data stream mining, and programmers who want to create

new algorithms for MOA.

Introduction to Statistical Relational Learning - Lise Getoor 2007

In 'Introduction to Statistical Relational Learning', leading researchers in this emerging area of machine learning describe current formalisms, models, and algorithms that enable effective and robust reasoning about richly structured systems and data.

[#HashtagActivism](#) - Sarah J. Jackson 2020-03-10
How marginalized groups use Twitter to advance counter-narratives, preempt political spin, and build diverse networks of dissent. The power of hashtag activism became clear in 2011, when [#IranElection](#) served as an organizing tool for Iranians protesting a disputed election and offered a global audience a front-row seat to a nascent revolution. Since then, activists have used a variety of hashtags, including [#JusticeForTrayvon](#), [#BlackLivesMatter](#), [#YesAllWomen](#), and [#MeToo](#) to advocate, mobilize, and communicate. In this book, Sarah

Jackson, Moya Bailey, and Brooke Foucault Welles explore how and why Twitter has become an important platform for historically disenfranchised populations, including Black Americans, women, and transgender people. They show how marginalized groups, long excluded from elite media spaces, have used Twitter hashtags to advance counternarratives, preempt political spin, and build diverse networks of dissent. The authors describe how such hashtags as [#MeToo](#), [#SurvivorPrivilege](#), and [#WhyIStayed](#) have challenged the conventional understanding of gendered violence; examine the voices and narratives of Black feminism enabled by [#FastTailedGirls](#), [#YouOKSis](#), and [#SayHerName](#); and explore the creation and use of [#GirlsLikeUs](#), a network of transgender women. They investigate the digital signatures of the “new civil rights movement”—the online activism, storytelling, and strategy-building that set the stage for [#BlackLivesMatter](#)—and recount the spread of

racial justice hashtags after the killing of Michael Brown in Ferguson, Missouri, and other high-profile incidents of killings by police. Finally, they consider hashtag created by allies, including #AllMenCan and #CrimingWhileWhite.

Social Cognition Ziva Kunda 1999

In this survey of research and theory about social cognition, Ziva Kunda reviews basic processes in social cognition, including the representation of social concepts, rules of inference, memory, hot cognition and automatic processing.

Living Books - Janneke Adema 2021-08-31
Reimagining the scholarly book as living and collaborative--not as commodified and essentialized, but in all its dynamic materiality. In this book, Janneke Adema proposes that we reimagine the scholarly book as a living and collaborative project--not as linear, bound, and fixed, but as fluid, remixed, and liquid, a space for experimentation. She presents a series of

cutting-edge experiments in arts and humanities book publishing, showcasing the radical new forms that book-based scholarly work might take in the digital age. Adema's proposed alternative futures for the scholarly book go beyond such print-based assumptions as fixity, stability, the single author, originality, and copyright, reaching instead for a dynamic and emergent materiality. Adema suggests ways to unbind the book, describing experiments in scholarly book publishing with new forms of anonymous collaborative authorship, radical open access publishing, and processual, living, and remixed publications, among other practices. She doesn't cast digital as the solution and print as the problem; the problem in scholarly publishing, she argues, is not print itself, but the way print has been commodified and essentialized. Adema explores alternative, more ethical models of authorship; constructs an alternative genealogy of openness; and examines opportunities for intervention in current cultures of knowledge

production. Finally, asking why it is that we cut and bind our research together at all, she examines two book publishing projects that experiment with remix and reuse and try to rethink and reperform the book-apparatus by taking responsibility for the cuts they make. *Design Rules, Volume 1* - Carliss Y. Baldwin
2000-03-02

We live in a dynamic economic and commercial world, surrounded by objects of remarkable complexity and power. In many industries, changes in products and technologies have brought with them new kinds of firms and forms of organization. We are discovering new ways of structuring work, of bringing buyers and sellers together, and of creating and using market information. Although our fast-moving economy often seems to be outside of our influence or control, human beings create the things that create the market forces. Devices, software programs, production processes, contracts, firms, and markets are all the fruit of

purposeful action: they are designed. Using the computer industry as an example, Carliss Y. Baldwin and Kim B. Clark develop a powerful theory of design and industrial evolution. They argue that the industry has experienced previously unimaginable levels of innovation and growth because it embraced the concept of modularity, building complex products from smaller subsystems that can be designed independently yet function together as a whole. Modularity freed designers to experiment with different approaches, as long as they obeyed the established design rules. Drawing upon the literatures of industrial organization, real options, and computer architecture, the authors provide insight into the forces of change that drive today's economy.

An Introduction to Genetic Algorithms -
Melanie Mitchell 1998-03-02

Genetic algorithms have been used in science and engineering as adaptive algorithms for solving practical problems and as computational

models of natural evolutionary systems. This brief, accessible introduction describes some of the most interesting research in the field and also enables readers to implement and experiment with genetic algorithms on their own. It focuses in depth on a small set of important and interesting topics—particularly in machine learning, scientific modeling, and artificial life—and reviews a broad span of research, including the work of Mitchell and her colleagues. The descriptions of applications and modeling projects stretch beyond the strict boundaries of computer science to include dynamical systems theory, game theory, molecular biology, ecology, evolutionary biology, and population genetics, underscoring the exciting "general purpose" nature of genetic algorithms as search methods that can be employed across disciplines. An Introduction to Genetic Algorithms is accessible to students and researchers in any scientific discipline. It includes many thought and computer exercises

that build on and reinforce the reader's understanding of the text. The first chapter introduces genetic algorithms and their terminology and describes two provocative applications in detail. The second and third chapters look at the use of genetic algorithms in machine learning (computer programs, data analysis and prediction, neural networks) and in scientific models (interactions among learning, evolution, and culture; sexual selection; ecosystems; evolutionary activity). Several approaches to the theory of genetic algorithms are discussed in depth in the fourth chapter. The fifth chapter takes up implementation, and the last chapter poses some currently unanswered questions and surveys prospects for the future of evolutionary computation.

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.