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Artificial Intelligence and Soft Computing - Amit Konar 2018-10-08
With all the material available in the field of artificial intelligence (AI) and soft computing-texts, monographs, and journal articles- there remains a serious gap in the literature. Until now, there has been no comprehensive resource accessible to a broad audience yet containing a depth and breadth of information that enables the reader to fully understand and readily apply AI and soft computing concepts. Artificial Intelligence and Soft Computing fills this gap. It presents both the traditional and the modern aspects of AI and soft computing in a clear, insightful, and highly comprehensive style. It provides an in-depth analysis of mathematical models and algorithms and demonstrates their applications in real world problems. Beginning with the behavioral perspective of "human cognition," the text covers the tools and techniques required for its intelligent realization on machines. The author addresses the classical aspects- search, symbolic logic, planning, and machine learning-in detail and includes the latest research in these areas. He introduces the modern aspects of soft computing from first principles and discusses them in a manner that enables a beginner to grasp the subject. He also covers a number of other leading aspects of AI

research, including nonmonotonic and spatio-temporal reasoning, knowledge acquisition, and much more. *Artificial Intelligence and Soft Computing: Behavioral and Cognitive Modeling of the Human Brain* is unique for its diverse content, clear presentation, and overall completeness. It provides a practical, detailed introduction that will prove valuable to computer science practitioners and students as well as to researchers migrating to the subject from other disciplines. **Introduction to Autonomous Mobile Robots, second edition** - Roland Siegwart 2011-02-18
The second edition of a comprehensive introduction to all aspects of mobile robotics, from algorithms to mechanisms. Mobile robots range from the Mars Pathfinder mission's teleoperated Sojourner to the cleaning robots in the Paris Metro. This text offers students and other interested readers an introduction to the fundamentals of mobile robotics, spanning the mechanical, motor, sensory, perceptual, and cognitive layers the field comprises. The text focuses on mobility itself, offering an overview of the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks, including locomotion, sensing, localization, and motion planning. It synthesizes material from such fields as kinematics,

control theory, signal analysis, computer vision, information theory, artificial intelligence, and probability theory. The book presents the techniques and technology that enable mobility in a series of interacting modules. Each chapter treats a different aspect of mobility, as the book moves from low-level to high-level details. It covers all aspects of mobile robotics, including software and hardware design considerations, related technologies, and algorithmic techniques. This second edition has been revised and updated throughout, with 130 pages of new material on such topics as locomotion, perception, localization, and planning and navigation. Problem sets have been added at the end of each chapter. Bringing together all aspects of mobile robotics into one volume, *Introduction to Autonomous Mobile Robots* can serve as a textbook or a working tool for beginning practitioners. Curriculum developed by Dr. Robert King, Colorado School of Mines, and Dr. James Conrad, University of North Carolina-Charlotte, to accompany the National Instruments LabVIEW Robotics Starter Kit, are available. Included are 13 (6 by Dr. King and 7 by Dr. Conrad) laboratory exercises for using the LabVIEW Robotics Starter Kit to teach mobile robotics concepts.

Artificial Intelligence in the 21st Century - Stephen Lucci 2015-12-10
This new edition provides a comprehensive, colorful, up-to-date, and accessible presentation of AI without sacrificing theoretical foundations. It includes numerous examples, applications, full color images, and human interest boxes to enhance student interest. New chapters on robotics and machine learning are now included. Advanced topics cover neural nets, genetic algorithms, natural language processing, planning, and complex board games. A companion DVD is provided with resources, applications, and figures from the book. Numerous instructors' resources are available upon adoption. eBook Customers: Companion files are available for downloading with order

number/proof of purchase by writing to the publisher at info@merclearning.com. FEATURES: • Includes new chapters on robotics and machine learning and new sections on speech understanding and metaphor in NLP • Provides a comprehensive, colorful, up to date, and accessible presentation of AI without sacrificing theoretical foundations • Uses numerous examples, applications, full color images, and human interest boxes to enhance student interest • Introduces important AI concepts e.g., robotics, use in video games, neural nets, machine learning, and more thorough practical applications • Features over 300 figures and color images with worked problems detailing AI methods and solutions to selected exercises • Includes DVD with resources, simulations, and figures from the book • Provides numerous instructors' resources, including: solutions to exercises, Microsoft PP slides, etc.

Artificial Intelligence - Jacob Parakilas 2018

"The rise of AI must be better managed in the near term in order to mitigate longer term risks and to ensure that AI does not reinforce existing inequalities"--Publisher.

AI Algorithms, Data Structures, and Idioms in Prolog, Lisp, and Java - George F. Luger 2009

Introduction to Artificial Intelligence and Expert Systems - Dan W. Patterson 1990

Artificial Intelligence - George F. Luger 2011-11-21

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. *Artificial Intelligence: Structures and Strategies for Complex Problem Solving* is ideal for a one- or two-semester undergraduate course on AI. In this accessible, comprehensive text, George Luger captures the essence of artificial intelligence-solving the complex problems that arise wherever computer technology is applied. Ideal for an undergraduate course in AI, the Sixth

Edition presents the fundamental concepts of the discipline first then goes into detail with the practical information necessary to implement the algorithms and strategies discussed. Readers learn how to use a number of different software tools and techniques to address the many challenges faced by today's computer scientists.

Psychology of Intelligence Analysis - Richards J Heuer 2020-03-05

In this seminal work, published by the C.I.A. itself, produced by Intelligence veteran Richards Heuer discusses three pivotal points. First, human minds are ill-equipped ("poorly wired") to cope effectively with both inherent and induced uncertainty. Second, increased knowledge of our inherent biases tends to be of little assistance to the analyst. And lastly, tools and techniques that apply higher levels of critical thinking can substantially improve analysis on complex problems.

World Social Report 2020 - Department of Economic and Social Affairs 2020-02-14

This report examines the links between inequality and other major global trends (or megatrends), with a focus on technological change, climate change, urbanization and international migration. The analysis pays particular attention to poverty and labour market trends, as they mediate the distributional impacts of the major trends selected. It also provides policy recommendations to manage these megatrends in an equitable manner and considers the policy implications, so as to reduce inequalities and support their implementation.

Deep Learning on Graphs - Yao Ma 2021-09-23

A comprehensive text on foundations and techniques of graph neural networks with applications in NLP, data mining, vision and healthcare.

Neural Networks - Simon S. Haykin 1994

Learning process - Correlation matrix memory - The perceptron - Least-mean-square algorithm - Multilayer perceptrons - Radial-basis function networks - Recurrent networks rooted

in statistical physics - Self-organizing systems I : hebbian learning - Self-organizing systems II : competitive learning - Self-organizing systems III : information-theoretic models - Modular networks - Temporal processing - Neurodynamics - VLSI implementations of neural networks.

Artificial Intelligence 3E (Sie) - Elaine Rich 2019

Foundational Issues in Artificial Intelligence and Cognitive Science - M.H. Bickhard 1996-10-15

The book focuses on a conceptual flaw in contemporary artificial intelligence and cognitive science. Many people have discovered diverse manifestations and facets of this flaw, but the central conceptual impasse is at best only partially perceived. Its consequences, nevertheless, visit themselves as distortions and failures of multiple research projects - and make impossible the ultimate aspirations of the fields. The impasse concerns a presupposition concerning the nature of representation - that all representation has the nature of encodings: encodingism. Encodings certainly exist, but encodingism is at root logically incoherent; any programmatic research predicted on it is doomed to distortion and ultimate failure. The impasse and its consequences - and steps away from that impasse - are explored in a large number of projects and approaches. These include SOAR, CYC, PDP, situated cognition, subsumption architecture robotics, and the frame problems - a general survey of the current research in AI and Cognitive Science emerges. Interactivism, an alternative model of representation, is proposed and examined.

Concrete Abstractions - Max Hailperin 1999

CONCRETE ABSTRACTIONS offers students a hands-on, abstraction-based experience of thinking like a computer scientist. This text covers the basics of programming and data structures, and gives first-time computer science students the opportunity to not only write programs, but to prove theorems and

analyze algorithms as well. Students learn a variety of programming styles, including functional programming, assembly-language programming, and object-oriented programming (OOP). While most of the book uses the Scheme programming language, Java is introduced at the end as a second example of an OOP system and to demonstrate concepts of concurrent programming.

Life 3.0 - Max Tegmark 2017-08-29
New York Times Best Seller How will Artificial Intelligence affect crime, war, justice, jobs, society and our very sense of being human? The rise of AI has the potential to transform our future more than any other technology—and there's nobody better qualified or situated to explore that future than Max Tegmark, an MIT professor who's helped mainstream research on how to keep AI beneficial. How can we grow our prosperity through automation without leaving people lacking income or purpose? What career advice should we give today's kids? How can we make future AI systems more robust, so that they do what we want without crashing, malfunctioning or getting hacked? Should we fear an arms race in lethal autonomous weapons? Will machines eventually outsmart us at all tasks, replacing humans on the job market and perhaps altogether? Will AI help life flourish like never before or give us more power than we can handle? What sort of future do you want? This book empowers you to join what may be the most important conversation of our time. It doesn't shy away from the full range of viewpoints or from the most controversial issues—from superintelligence to meaning, consciousness and the ultimate physical limits on life in the cosmos.

Autonomous Horizons - Greg Zacharias 2019-04-05

Dr. Greg Zacharias, former Chief Scientist of the United States Air Force (2015-18), explores next steps in autonomous systems (AS) development, fielding, and training. Rapid advances in AS development and artificial intelligence (AI) research will change how we think about

machines, whether they are individual vehicle platforms or networked enterprises. The payoff will be considerable, affording the US military significant protection for aviators, greater effectiveness in employment, and unlimited opportunities for novel and disruptive concepts of operations. *Autonomous Horizons: The Way Forward* identifies issues and makes recommendations for the Air Force to take full advantage of this transformational technology.

Designing Virtual Worlds - Richard A. Bartle 2004

A comprehensive resource on the principles and techniques of virtual world design and programming covers everything from MUDS to MMOs and MMORPGs, explaining how virtual worlds work, creating games for multiple users, and the underlying design principles of online games. Original. (Advanced)

Recording for the Blind & Dyslexic, ... Catalog of Books - 1996

Automata, Computability and Complexity - Elaine Rich 2008

For upper level courses on Automata. Combining classic theory with unique applications, this crisp narrative is supported by abundant examples and clarifies key concepts by introducing important uses of techniques in real systems. Broad-ranging coverage allows instructors to easily customise course material to fit their unique requirements.

Behind Deep Blue - Feng-hsiung Hsu 2004-02-15

Feng-hsiung Hsu provides a behind-the-scenes look at the two matches between the Deep Blue chess machine and world champion Garry Kasparov, and discusses his quest to develop the machine at IBM's T.J. Watson Research Center.

Artificial Intelligence: A Systems Approach - M. Tim Jones 2008-12-26

This book offers students and AI programmers a new perspective on the study of artificial intelligence concepts. The essential topics and theory of AI are presented, but it also includes practical information on data input & reduction as well as data output (i.e., algorithm usage).

Because traditional AI concepts such as pattern recognition, numerical optimization and data mining are now simply types of algorithms, a different approach is needed. This “sensor / algorithm / effector” approach grounds the algorithms with an environment, helps students and AI practitioners to better understand them, and subsequently, how to apply them. The book has numerous up to date applications in game programming, intelligent agents, neural networks, artificial immune systems, and more. A CD-ROM with simulations, code, and figures accompanies the book.

Ontology-Based Information Retrieval for Healthcare Systems - Vishal Jain
2020-07-29

With the advancements of semantic web, ontology has become the crucial mechanism for representing concepts in various domains. For research and dispersal of customized healthcare services, a major challenge is to efficiently retrieve and analyze individual patient data from a large volume of heterogeneous data over a long time span. This requirement demands effective ontology-based information retrieval approaches for clinical information systems so that the pertinent information can be mined from large amount of distributed data. This unique and groundbreaking book highlights the key advances in ontology-based information retrieval techniques being applied in the healthcare domain and covers the following areas: Semantic data integration in e-health care systems Keyword-based medical information retrieval Ontology-based query retrieval support for e-health implementation Ontologies as a database management system technology for medical information retrieval Information integration using contextual knowledge and ontology merging Collaborative ontology-based information indexing and retrieval in health informatics An ontology-based text mining framework for vulnerability assessment in health and social care An ontology-based multi-agent system for matchmaking patient healthcare monitoring A

multi-agent system for querying heterogeneous data sources with ontologies for reducing cost of customized healthcare systems A methodology for ontology based multi agent systems development Ontology based systems for clinical systems: validity, ethics and regulation

The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies - Erik Brynjolfsson
2014-01-20

A pair of technology experts describe how humans will have to keep pace with machines in order to become prosperous in the future and identify strategies and policies for business and individuals to use to combine digital processing power with human ingenuity.

Marketing and Sales Automation - Uwe Hannig
2023-05-02

This book clarifies based on latest findings and research what one needs to know about marketing and sales automation, how to manage projects to implement them, select and implement tools, and what results can be achieved. It also outlines what can be expected in the future such as the automation of corporate communication and Human Resources. The range of topics spans from the creation of a valid data base in the context of applied AI for realizing predictive intelligence and the effects of data regulations such as the European General Data Protection Regulation (GDPR) when addressing customers and prospects to recommendations for selecting and implementing the necessary IT systems. Experts also report on their experiences in regard to Conversion-rate-optimization (CRO) and provide tips and assistance on how to optimize and ensure the highest RoI for marketing and sales automation. A special focus will be placed on the dovetailing of marketing and sales and the management of the customer journey as well as the improvement of the customer experience.

The Quest for Artificial Intelligence - Nils J. Nilsson
2009-10-30

Artificial intelligence (AI) is a field within computer science that is attempting to build enhanced intelligence into computer systems.

This book traces the history of the subject, from the early dreams of eighteenth-century (and earlier) pioneers to the more successful work of today's AI engineers. AI is becoming more and more a part of everyone's life. The technology is already embedded in face-recognizing cameras, speech-recognition software, Internet search engines, and health-care robots, among other applications. The book's many diagrams and easy-to-understand descriptions of AI programs will help the casual reader gain an understanding of how these and other AI systems actually work. Its thorough (but unobtrusive) end-of-chapter notes containing citations to important source materials will be of great use to AI scholars and researchers. This book promises to be the definitive history of a field that has captivated the imaginations of scientists, philosophers, and writers for centuries.

An Introduction to Language and Linguistics - Ralph Fasold 2006-03-06

This accessible textbook is the only introduction to linguistics in which each chapter is written by an expert who teaches courses on that topic, ensuring balanced and uniformly excellent coverage of the full range of modern linguistics. Assuming no prior knowledge the text offers a clear introduction to the traditional topics of structural linguistics (theories of sound, form, meaning, and language change), and in addition provides full coverage of contextual linguistics, including separate chapters on discourse, dialect variation, language and culture, and the politics of language. There are also up-to-date separate chapters on language and the brain, computational linguistics, writing, child language acquisition, and second-language learning. The breadth of the textbook makes it ideal for introductory courses on language and linguistics offered by departments of English, sociology, anthropology, and communications, as well as by linguistics departments.

Introduction to Information Retrieval
- Christopher D. Manning 2008-07-07
Class-tested and coherent, this

textbook teaches classical and web information retrieval, including web search and the related areas of text classification and text clustering from basic concepts. It gives an up-to-date treatment of all aspects of the design and implementation of systems for gathering, indexing, and searching documents; methods for evaluating systems; and an introduction to the use of machine learning methods on text collections. All the important ideas are explained using examples and figures, making it perfect for introductory courses in information retrieval for advanced undergraduates and graduate students in computer science. Based on feedback from extensive classroom experience, the book has been carefully structured in order to make teaching more natural and effective. Slides and additional exercises (with solutions for lecturers) are also available through the book's supporting website to help course instructors prepare their lectures.

The Algorithm Design Manual - Steven S Skiena 2009-04-05

This newly expanded and updated second edition of the best-selling classic continues to take the "mystery" out of designing algorithms, and analyzing their efficacy and efficiency. Expanding on the first edition, the book now serves as the primary textbook of choice for algorithm design courses while maintaining its status as the premier practical reference guide to algorithms for programmers, researchers, and students. The reader-friendly Algorithm Design Manual provides straightforward access to combinatorial algorithms technology, stressing design over analysis. The first part, Techniques, provides accessible instruction on methods for designing and analyzing computer algorithms. The second part, Resources, is intended for browsing and reference, and comprises the catalog of algorithmic resources, implementations and an extensive bibliography. NEW to the second edition: • Doubles the tutorial material and exercises over the first edition • Provides full online support for lecturers, and a

completely updated and improved website component with lecture slides, audio and video • Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, leading the reader down the right path to solve them • Includes several NEW "war stories" relating experiences from real-world applications • Provides up-to-date links leading to the very best algorithm implementations available in C, C++, and Java

Artificial Intelligence for a Better Future - Bernd Carsten Stahl
2021-03-17

This open access book proposes a novel approach to Artificial Intelligence (AI) ethics. AI offers many advantages: better and faster medical diagnoses, improved business processes and efficiency, and the automation of boring work. But undesirable and ethically problematic consequences are possible too: biases and discrimination, breaches of privacy and security, and societal distortions such as unemployment, economic exploitation and weakened democratic processes. There is even a prospect, ultimately, of super-intelligent machines replacing humans. The key question, then, is: how can we benefit from AI while addressing its ethical problems? This book presents an innovative answer to the question by presenting a different perspective on AI and its ethical consequences. Instead of looking at individual AI techniques, applications or ethical issues, we can understand AI as a system of ecosystems, consisting of numerous interdependent technologies, applications and stakeholders. Developing this idea, the book explores how AI ecosystems can be shaped to foster human flourishing. Drawing on rich empirical insights and detailed conceptual analysis, it suggests practical measures to ensure that AI is used to make the world a better place.

The Democratization of Artificial Intelligence - Andreas Sudmann
2019-10-31

After a long time of neglect, Artificial Intelligence is once again at the center of most of our

political, economic, and socio-cultural debates. Recent advances in the field of Artificial Neural Networks have led to a renaissance of dystopian and utopian speculations on an AI-rendered future. Algorithmic technologies are deployed for identifying potential terrorists through vast surveillance networks, for producing sentencing guidelines and recidivism risk profiles in criminal justice systems, for demographic and psychographic targeting of bodies for advertising or propaganda, and more generally for automating the analysis of language, text, and images. Against this background, the aim of this book is to discuss the heterogenous conditions, implications, and effects of modern AI and Internet technologies in terms of their political dimension: What does it mean to critically investigate efforts of net politics in the age of machine learning algorithms?
Books In Print 2004-2005 - Bowker Editorial Staff 2004

Atmospheric Chemistry - Ann M Holloway 2015-11-09

Atmospheric Chemistry provides readers with a basic knowledge of the chemistry of Earth's atmosphere, and an understanding of the role that chemical transformations play in this vital part of our environment. The composition of the 'natural' atmosphere (troposphere, stratosphere and mesosphere) is described in terms of the physical and chemical cycles that govern the behaviour of the major and the many minor species present, and of the atmospheric lifetimes of those species. An extension of these ideas leads to a discussion of the impacts of Man's activities on the atmosphere, and to an understanding of some of the most important environmental issues of our time. One thread of the book explains how living organisms alter the composition and pressures in the atmosphere, modify temperatures, and change the intensity and wavelength-distribution of light arriving from the Sun. Meanwhile, the living organisms on Earth have depended on these very same environmental

conditions being satisfactory for the maintenance and evolution of life. There thus appear to be two-way interactions between life and the atmosphere. Man, just one species of living organism, has developed an unfortunate ability to interfere with the feedbacks that seem to have maintained the atmosphere to be supportive of surface life for more than 3.5 billion years. This book will help chemists to understand the background to the problems that arise from such interference. The structure of the book and the development of the subject deviate somewhat from those usually encountered. Important and recurring concepts are presented in outline first, before more detailed discussions of the atmospheric behaviour of specific chemical species. Examples of such themes are the sources and sinks of trace gases, and their budgets and lifetimes. That is, the emphasis is initially on the principles of the subject, with the finer points emerging at later points in the book, sometimes in several successive chapters. In this way, some of the core material gets repeated exposure, but in new ways and in new contexts. The book is written at a level that makes it accessible to undergraduate chemists, and in a manner that should make it interesting to them. However, the material presented forms a solid base for those who are extending their studies to a higher level, and it will also provide non-specialists with the background to an understanding of Man's several and varied threats to the atmosphere. Well-informed citizens can then better assess measures proposed to prevent or alleviate the potential damage, and policy makers more realistically formulate the necessary controls on a sound scientific foundation.

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.

Advances in Logic, Artificial Intelligence and Robotics - Jair Minoro Abe 2002

Logic (both classical and non-classical) is being increasingly related with other fields in almost every scientific discipline and human activity. This work covers its role in artificial intelligence, robotics, informatics, technology, and correlated themes.

Analytics, Data Science, and Artificial Intelligence - Ramesh Sharda 2020-03-06

For courses in decision support systems, computerized decision-making

tools, and management support systems. Market-leading guide to modern analytics, for better business decisions Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support is the most comprehensive introduction to technologies collectively called analytics (or business analytics) and the fundamental methods, techniques, and software used to design and develop these systems. Students gain inspiration from examples of organisations that have employed analytics to make decisions, while leveraging the resources of a companion website. With six new chapters, the 11th edition marks a major reorganisation reflecting a new focus -- analytics and its enabling technologies, including AI, machine-learning, robotics, chatbots, and IoT.

Search in Artificial Intelligence - Leveen Kanal 2012-12-06

Search is an important component of problem solving in artificial intelligence (AI) and, more generally, in computer science, engineering and operations research. Combinatorial optimization, decision analysis, game playing, learning, planning, pattern recognition, robotics and theorem proving are some of the areas in which search algorithms play a key role. Less than a decade ago the conventional wisdom in artificial intelligence was that the best search algorithms had already been invented and the likelihood of finding new results in this area was very small. Since then many new insights and results have been obtained. For example, new algorithms for state space, AND/OR graph, and game tree search were discovered. Articles on new theoretical developments and experimental results on backtracking, heuristic search and constraint propagation were published. The relationships among various search and combinatorial algorithms in AI, Operations Research, and other fields were clarified. This volume brings together some of this recent work in a manner designed to be accessible to students and professionals interested in these new insights and

developments.

Artificial Intelligence and Games -

Georgios N. Yannakakis 2018-02-17

This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study by industrial game developers and practitioners. The authors have developed a website

(<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

Introduction to Artificial Intelligence - Wolfgang Ertel

2018-01-18

This accessible and engaging textbook presents a concise introduction to the exciting field of artificial intelligence (AI). The broad-ranging discussion covers the key subdisciplines within the field, describing practical algorithms and concrete applications in the areas of agents, logic, search, reasoning under uncertainty, machine learning, neural networks, and reinforcement learning. Fully revised and updated, this much-anticipated second edition also includes new material on deep learning. Topics and features: presents an application-focused and hands-on approach to learning, with supplementary teaching resources provided at an associated website; contains numerous study exercises and solutions, highlighted examples, definitions, theorems, and illustrative cartoons; includes chapters on predicate logic, PROLOG, heuristic search, probabilistic reasoning, machine learning and data mining, neural networks and reinforcement learning; reports on developments in deep learning, including applications of neural networks to generate creative content

such as text, music and art (NEW); examines performance evaluation of clustering algorithms, and presents two practical examples explaining Bayes' theorem and its relevance in everyday life (NEW); discusses search algorithms, analyzing the cycle check, explaining route planning for car navigation systems, and introducing Monte Carlo Tree Search (NEW); includes a section in the introduction on AI and society, discussing the implications of AI on topics such as employment and transportation (NEW). Ideal for foundation courses or modules on AI, this easy-to-read textbook offers an excellent overview of the field for students of computer science and other technical disciplines, requiring no more than a high-school level of knowledge of mathematics to understand the material.

The Fourth Industrial Revolution - Klaus Schwab 2017-01-03

World-renowned economist Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, explains that we have an opportunity to shape the fourth industrial revolution, which will fundamentally alter how we live and work. Schwab argues that this revolution is different in scale, scope and complexity from any that have come before. Characterized by a range of new technologies that are fusing the physical, digital and biological worlds, the developments are affecting all disciplines, economies, industries and governments, and even challenging ideas about what it means to be human. Artificial intelligence is already all around us, from supercomputers, drones and virtual assistants to 3D printing, DNA sequencing, smart thermostats, wearable sensors and microchips smaller than a grain of sand. But this is just the beginning: nanomaterials 200 times stronger than steel and a million times thinner than a strand of hair and the first transplant of a 3D printed liver are already in development. Imagine "smart factories" in which global systems of manufacturing are coordinated virtually, or implantable mobile phones made of biosynthetic

materials. The fourth industrial revolution, says Schwab, is more significant, and its ramifications more profound, than in any prior period of human history. He outlines the key technologies driving this revolution and discusses the major impacts expected on government, business, civil society and individuals. Schwab also offers bold ideas on how to harness these changes and shape a better future—one in which technology empowers people rather than replaces them; progress serves society rather than disrupts it; and in which innovators respect moral and ethical boundaries rather than cross them. We all have the opportunity to contribute to developing new frameworks that advance progress.

Good Economics for Hard Times - Abhijit V. Banerjee 2019-11-12

The winners of the Nobel Prize show how economics, when done right, can help us solve the thorniest social and political problems of our day. Figuring out how to deal with today's critical economic problems is perhaps the great challenge of our time. Much greater than space travel or perhaps even the next revolutionary medical breakthrough, what is at stake is the whole idea of the good life as we have known it. Immigration and inequality, globalization and technological disruption, slowing growth and accelerating climate change--these are sources of great anxiety across the world, from New Delhi and Dakar to Paris and Washington, DC. The resources to address these challenges are there--what we lack are ideas that will help us jump the wall of disagreement and distrust that divides us. If we succeed, history will remember our era with gratitude; if we fail, the potential losses are incalculable. In this revolutionary book, renowned MIT economists Abhijit V. Banerjee and Esther Duflo take on this challenge, building on cutting-edge research in economics explained with lucidity and grace. Original, provocative, and urgent, *Good Economics for Hard Times* makes a persuasive case for an intelligent interventionism and a society built on compassion and respect. It is an extraordinary

achievement, one that shines a light to help us appreciate and understand our precariously balanced world.