Artificial Intelligence George F Luger 4th Edition

Artificial Intelligence-George F. Luger 2009 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.

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.

Knowing our World: An Artificial Intelligence Perspective-George F. Luger 2021-07-02 Knowing our World: An Artificial Intelligence Perspective considers the methodologies of science, computation, and artificial intelligence to explore how we humans come to understand and operate in our world. While humankind's history of articulating ideas and building machines that can replicate the activity of the human brain is impressive, Professor Luger focuses on understanding the skills that enable these goals. Based on insights afforded by the challenges of AI design and program building, Knowing our World proposes a foundation for the science of epistemology. Taking an interdisciplinary perspective, the book demonstrates that AI technology offers many representational structures and reasoning strategies that support clarification of these epistemic foundations. This monograph is organized in three Parts; the first three chapters introduce the reader to the foundations of computing and the philosophical background that supports the AI tradition. These three chapters describe the origins of AI, programming as iterative refinement, and the representations and very high-level language tools that

support AI application building. The book's second Part introduces three of the four paradigms that represent research and development in AI over the past seventy years: the symbol-based, connectionist, and complex adaptive systems. Luger presents several introductory programs in each area and demonstrates their use. The final three chapters present the primary theme of the book: bringing together the rationalist, empiricist, and pragmatist philosophical traditions in the context of a Bayesian world view. Luger describes Bayes' theorem with a simple proof to demonstrate epistemic insights. He describes research in model building and refinement and several philosophical issues that constrain the future growth of AI. The book concludes with his proposal of the epistemic stance of an active, pragmatic, model-revising realism.

Artificial Intelligence-George F. Luger 2005 This edition of 'Artificial Intelligence' includes increased coverage of the stochastic approaches to AI and stochastic methodology. Various sections have also been extended to recognize the importance of agent-based problem solving and embodiment in AI technology.

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

Paradigms of Artificial Intelligence Programming-Peter Norvig 2014-06-28 Paradigms of AI Programming is

the first text to teach advanced Common Lisp techniques in the context of building major AI systems. By reconstructing authentic, complex AI programs using state-of-the-art Common Lisp, the book teaches students and professionals how to build and debug robust practical programs, while demonstrating superior programming style and important AI concepts. The author strongly emphasizes the practical performance issues involved in writing real working programs of significant size. Chapters on troubleshooting and efficiency are included, along with a discussion of the fundamentals of object-oriented programming and a description of the main CLOS functions. This volume is an excellent text for a course on AI programming, a useful supplement for general AI courses and an indispensable reference for the professional programmer.

Artificial Intelligence Illuminated-Ben Coppin 2004
Artificial Intelligence Illuminated presents an overview of the background and history of artificial intelligence, emphasizing its importance in today's society and potential for the future. The book covers a range of AI techniques, algorithms, and methodologies, including game playing, intelligent agents, machine learning, genetic algorithms, and Artificial Life. Material is presented in a lively and accessible manner and the author focuses on explaining how AI techniques relate to and are derived from natural systems, such as the human brain and evolution, and explaining how the artificial equivalents are used in the real world. Each chapter includes student exercises and review questions, and a detailed glossary at the end of the book

defines important terms and concepts highlighted throughout the text.

Computation and Intelligence-George F. Luger 1995
Computation and Intelligence brings together 29 readings in Artificial Intelligence that are particularly relevant to today's student/practitioner. With its helpful critique of the selections, extensive bibliography, and clear presentation of the material, Computation and Intelligence will be a useful adjunct to any course in AI as well as a handy reference for professionals in the field. The book is divided into five parts, each reflecting the stages of development of AI. The first part, Foundations,, contains readings that present or discuss foundational ideas linking computation and intelligence, typified by A. M. Turing's "Computing Machinery and Intelligence." The second part, Knowledge Representation, presents a sampling of numerous representational schemes by Newell, Minsky, Collins & Quillian, Winograd, Schank, Hayes, Holland, McClelland, Rumelhart, Hinton, and Brooks. The third part, Weak Method Problem Solving, fouses on the research and design of syntax-based problem solvers, including the most famous of these, the Logic Theorist and GPS. The fourth part, Reasoning in Complex and Dynamic Environments, presents a broad spectrum of the AI community's research in knowledge-intensive problem solving, from McCarthy's early design of systems with "common sense" to model-based reasoning. The two concluding selections, by Marvin Minsky and by Herbert Simon, respectively, present the recent thoughts of two of AI's pioneers who revisit the concepts

and controversies that have developed during the evolution of the tools and techniques that make up the current practice of Artificial Intelligence.

Essentials of Artificial Intelligence-Matt Ginsberg 2012-12-02 Since its publication, Essentials of Artificial Intelligence has been adopted at numerous universities and colleges offering introductory AI courses at the graduate and undergraduate levels. Based on the author's course at Stanford University, the book is an integrated, cohesive introduction to the field. The author has a fresh, entertaining writing style that combines clear presentations with humor and AI anecdotes. At the same time, as an active AI researcher, he presents the material authoritatively and with insight that reflects a contemporary, first hand understanding of the field. Pedagogically designed, this book offers a range of exercises and examples.

Artificial Intelligence-George F. Luger 2002-01 Much has changed since the early editions of Artificial Intelligence were published. To reflect this the introductory material of this fifth edition has been substantially revised and rewritten to capture the excitement of the latest developments in AI work. Artificial intelligence is a diverse field. To ask the question "what is intelligence?" is to invite as many answers as there are approaches to the subject of artificial intelligence. These could be intelligent agents, logical reasoning, neural networks, expert systems, evolutionary computing and so on. This fifth edition covers

all the main strategies used for creating computer systems that will behave in "intelligent" ways. It combines the broadest approach of any text in the marketplace with the practical information necessary to implement the strategies discussed, showing how to do this through Prolog or LISP programming.

Cognitive Science-George F. Luger 1994-06-08 The interdisciplinary field of cognitive science brings together elements of cognitive psychology, mathematics, perception, linguistics, and artificial intelligence. Given this breadth, textbooks have had difficulty providing balanced coverage-most resort to disjointed edited treatises that prove difficult to use. Cognitive Science provides a unified and comprehensive look at the field, from foundations to applications. Luger explores the logical and philosophical bases of cognitive science with multiple models of intelligence, including neural networks and connectionism. Practical programming examples are included along with an introduction to PROLOG.

Artificial Intelligence-Stuart Russell 2016-09-10 Artificial Intelligence: A Modern Approach offers the most comprehensive, up-to-date introduction to the theory and practice of artificial intelligence. Number one in its field, this textbook is ideal for one or two-semester, undergraduate or graduate-level courses in Artificial Intelligence.

The Synaptic Organization of the Brain-Gordon M. Shepherd 2004 This is a thorough revision of the standard text on local circuits in the different regions of the brain. In this fifth edition, the results of the mouse and human genome projects are incorporated for the first time. Also for the first time, the reader is oriented to supporting neuroscience databases. Among the new advances covered are 2-photon confocal laser microscopy of dendrites and dendritic spines, biochemical analyses, and dual patch and multielectrode recordings, applied together with an increasing range of behavioral and gene-targeting methods.

Artificial Intelligence-David L. Poole 2017-09-25 Artificial Intelligence presents a practical guide to AI, including agents, machine learning and problem-solving simple and complex domains.

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.

The Age of Intelligent Machines-Ray Kurzweil 1992 Comparing the human brain with so-called artificial intelligence, the author probes past, present, and future attempts to create machine intelligence

Boomeritis-Ken Wilber 2003-09-09 Ken Wilber's latest book is a daring departure from his previous writings—a highly original work of fiction that combines brilliant scholarship with tongue-in-cheek storytelling to present the integral approach to human development that he expounded in more

conventional terms in his recent A Theory of Everything. The story of a naïve young grad student in computer science and his quest for meaning in a fragmented world provides the setting in which Wilber contrasts the alienated "flatland" of scientific materialism with the integral vision, which embraces body, mind, soul, and spirit in self, culture, and nature. The book especially targets one of the most stubborn obstacles to realizing the integral vision: a disease of egocentrism and narcissism that Wilber calls "boomeritis" because it seems to plague the baby-boomer generation most of all. Through a series of sparkling seminar-lectures skillfully interwoven with the hero's misadventures in the realms of sex, drugs, and popular culture, all of the major tenets of extreme postmodernism are criticized—and exemplified—including the author's having a bad case of boomeritis himself. Parody, intellectual slapstick, and a mind-twisting surprise ending unite to produce a highly entertaining summary of the work of cutting-edge theorists in human development from around the world.

Mathematical Classification and Clustering-Boris Mirkin 2013-12-01 I am very happy to have this opportunity to present the work of Boris Mirkin, a distinguished Russian scholar in the areas of data analysis and decision making methodologies. The monograph is devoted entirely to clustering, a discipline dispersed through many theoretical and application areas, from mathematical statistics and combina torial optimization to biology, sociology and organizational structures. It compiles an immense amount of research done to date, including many original Russian de

velopments never presented to the international community before (for instance, cluster-by-cluster versions of the K-Means method in Chapter 4 or uniform par titioning in Chapter 5). The author's approach, approximation clustering, allows him both to systematize a great part of the discipline and to develop many in novative methods in the framework of optimization problems. The optimization methods considered are proved to be meaningful in the contexts of data analysis and clustering. The material presented in this book is quite interesting and stimulating in paradigms, clustering and optimization. On the other hand, it has a substantial application appeal. The book will be useful both to specialists and students in the fields of data analysis and clustering as well as in biology, psychology, economics, marketing research, artificial intelligence, and other scientific disciplines. Panos Pardalos, Series Editor.

Foundations of Artificial Intelligence-David Kirsh 1992
In the 11 contributions, theorists historically associated with each position identify the basic tenets of their position.Have the classical methods and ideas of AI outlived their usefulness? Foundations of Artificial Intelligence critically evaluates the fundamental assumptions underpinning the dominant approaches to AI. In the 11 contributions, theorists historically associated with each position identify the basic tenets of their position. They discuss the underlying principles, describe the natural types of problems and tasks in which their approach succeeds, explain where its power comes from, and what its scope and limits are. Theorists generally skeptical of these positions

evaluate the effectiveness of the method or approach and explain why it works - to the extent they believe it does - and why it eventually fails.ContentsFoundations of AI: The Big Issues, D. Kirsh - Logic and Artificial Intelligence, N. J. Nilsson - Rigor Mortis: A Response to Nilsson's 'Logic and Artificial Intelligence, ' L. Birnbaum - Open Information Systems Semantics for Distributed Artificial Intelligence, C. Hewitt - Social Conceptions of Knowledge and Action: DAI Foundations and Open Systems Semantics, L. Gasser - Intelligence without Representation, R. A. Brooks - Today the Earwig, Tomorrow Man? D. Kirsh - On the Thresholds of Knowledge, D. B. Lenat, E. A. Feigenbaum - The Owl and the Electric Encyclopedia, B. C. Smith - A Preliminary Analysis of the Soar Architecture as a Basis for General Intelligence, P. S. Rosenbloom, J. E. Laird, A. Newell, R. McCarl - Approaches to the Study of Intelligence, D. A. Norman

Machine Learning-Ryszard S. Michalski 1994-02-23
Multistrategy learning is one of the newest and most promising research directions in the development of machine learning systems. The objectives of research in this area are to study trade-offs between different learning strategies and to develop learning systems that employ multiple types of inference or computational paradigms in a learning process. Multistrategy systems offer significant advantages over monostrategy systems. They are more flexible in the type of input they can learn from and the type of knowledge they can acquire. As a consequence, multistrategy systems have the potential to be applicable to

a wide range of practical problems. This volume is the first book in this fast growing field. It contains a selection of contributions by leading researchers specializing in this area. See below for earlier volumes in the series.

Knowledge Systems and Prolog-Adrian David Walker 1990

Thinking about Android Epistemology-Kenneth M. Ford 2006 Articles by various authors arranged in 5 parts.

Organization of Memory-Endel Tulving 1972

Computational Logic and Human Thinking-Robert Kowalski 2011-07-21 The practical benefits of computational logic need not be limited to mathematics and computing. As this book shows, ordinary people in their everyday lives can profit from the recent advances that have been developed for artificial intelligence. The book draws upon related developments in various fields from philosophy to psychology and law. It pays special attention to the integration of logic with decision theory, and the use of logic to improve the clarity and coherence of communication in natural languages such as English. This book is essential reading for teachers and researchers who may be out of touch with the latest developments in computational logic. It will also be useful in any undergraduate course that teaches

practical thinking, problem solving or communication skills. Its informal presentation makes the book accessible to readers from any background, but optional, more formal, chapters are also included for those who are more technically oriented.

Head First Learn to Code-Eric Freeman 2018-01-02 What will you learn from this book? It's no secret the world around you is becoming more connected, more configurable, more programmable, more computational. You can remain a passive participant, or you can learn to code. With Head First Learn to Code you'll learn how to think computationally and how to write code to make your computer, mobile device, or anything with a CPU do things for you. Using the Python programming language, you'll learn step by step the core concepts of programming as well as many fundamental topics from computer science, such as data structures, storage, abstraction, recursion, and modularity. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Learn to Code uses a visually rich format to engage your mind, rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multi-sensory learning experience is designed for the way your brain really works.

Readings in Qualitative Reasoning About Physical Systems-Daniel S. Weld 2013-09-17 Readings in Qualitative Reasoning about Physical Systems describes the automated

reasoning about the physical world using qualitative representations. This text is divided into nine chapters, each focusing on some aspect of qualitative physics. The first chapter deal with qualitative physics, which is concerned with representing and reasoning about the physical world. The goal of qualitative physics is to capture both the commonsense knowledge of the person on the street and the tacit knowledge underlying the quantitative knowledge used by engineers and scientists. The succeeding chapter discusses the qualitative calculus and its role in constructing an envisionment that includes behavior over both mythical time and elapsed time. These topics are followed by reviews of the mathematical aspects of qualitative reasoning, history-based simulation and temporal reasoning, as well as the intelligence in scientific computing. The final chapters are devoted to automated modeling for qualitative reasoning and causal explanations of behavior. These chapters also examine the qualitative kinematics of reasoning about shape and space. This book will prove useful to psychologists and psychiatrists.

Parallel Processing and Parallel Algorithms-Seyed H Roosta 2012-12-06 Motivation It is now possible to build powerful single-processor and multiprocessor systems and use them efficiently for data processing, which has seen an explosive ex pansion in many areas of computer science and engineering. One approach to meeting the performance requirements of the applications has been to utilize the most powerful single-processor system that is available. When such a system does not provide the performance

requirements, pipelined and parallel process ing structures can be employed. The concept of parallel processing is a depar ture from sequential processing. In sequential computation one processor is in volved and performs one operation at a time. On the other hand, in parallel computation several processors cooperate to solve a problem, which reduces computing time because several operations can be carried out simultaneously. Using several processors that work together on a given computation illustrates a new paradigm in computer problem solving which is completely different from sequential processing. From the practical point of view, this provides sufficient justification to investigate the concept of parallel processing and related issues, such as parallel algorithms. Parallel processing involves utilizing several factors, such as parallel architectures, parallel algorithms, parallel programming lan guages and performance analysis, which are strongly interrelated. In general, four steps are involved in performing a computational problem in parallel. The first step is to understand the nature of computations in the specific application domain.

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 algbrithms playa 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 propaga tion 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.

The Mathematics of Inheritance Systems-David S. Touretzky 1986

ADTs, Data Structures, and Problem Solving with C++-Larry R. Nyhoff 2005 For the introductory Data Structures course (CS2) that follows a first course in programming. A presentation of essential principles and practices in data structures using C++. Reflecting trends in computer science, new and revised material in the Second Edition places increased emphasis on abstract data types (ADTs) and object-oriented design.

Python Artificial Intelligence Projects for Beginners- Dr. Joshua Eckroth 2018-07-31 Build smart applications by implementing real-world artificial intelligence projects Key Features Explore a variety of AI projects with Python Get well-versed with different types of neural networks and popular deep learning algorithms Leverage popular Python deep learning libraries for your AI projects Book Description Artificial Intelligence (AI) is the newest technology that's being employed among varied businesses, industries, and sectors. Python Artificial Intelligence Projects for Beginners demonstrates AI projects in Python, covering modern techniques that make up the world of Artificial Intelligence. This book begins with helping you to build your first prediction model using the popular Python library, scikit-learn. You will understand how to build a classifier using an effective machine learning technique, random forest, and decision trees. With exciting projects on predicting bird species, analyzing student performance data, song genre identification, and spam detection, you will learn the fundamentals and various algorithms and techniques that foster the development of these smart applications. In the concluding chapters, you will also understand deep learning and neural network mechanisms through these projects with the help of the Keras library. By the end of this book, you will be confident in building your own AI projects with Python and be ready to take on more advanced projects as you progress What you will learn Build a prediction model using decision trees and random forest Use neural networks, decision trees, and random forests for classification Detect YouTube comment spam with a bag-of-words and random forests Identify handwritten

mathematical symbols with convolutional neural networks Revise the bird species identifier to use images Learn to detect positive and negative sentiment in user reviews Who this book is for Python Artificial Intelligence Projects for Beginners is for Python developers who want to take their first step into the world of Artificial Intelligence using easy-to-follow projects. Basic working knowledge of Python programming is expected so that you're able to play around with code

Studyguide for Artificial Intelligence-Cram101 Textbook Reviews 2009-12 Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780321545893 .

A First Course in Machine Learning-Simon Rogers 2016-10-14 "A First Course in Machine Learning by Simon Rogers and Mark Girolami is the best introductory book for ML currently available. It combines rigor and precision with accessibility, starts from a detailed explanation of the basic foundations of Bayesian analysis in the simplest of settings, and goes all the way to the frontiers of the subject such as infinite mixture models, GPs, and MCMC." —Devdatt Dubhashi, Professor, Department of Computer Science and Engineering, Chalmers University, Sweden "This textbook

manages to be easier to read than other comparable books in the subject while retaining all the rigorous treatment needed. The new chapters put it at the forefront of the field by covering topics that have become mainstream in machine learning over the last decade." —Daniel Barbara, George Mason University, Fairfax, Virginia, USA "The new edition of A First Course in Machine Learning by Rogers and Girolami is an excellent introduction to the use of statistical methods in machine learning. The book introduces concepts such as mathematical modeling, inference, and prediction, providing 'just in time' the essential background on linear algebra, calculus, and probability theory that the reader needs to understand these concepts." —Daniel Ortiz-Arroyo, Associate Professor, Aalborg University Esbjerg, Denmark "I was impressed by how closely the material aligns with the needs of an introductory course on machine learning, which is its greatest strength…Overall, this is a pragmatic and helpful book, which is well-aligned to the needs of an introductory course and one that I will be looking at for my own students in coming months." —David Clifton, University of Oxford, UK "The first edition of this book was already an excellent introductory text on machine learning for an advanced undergraduate or taught masters level course, or indeed for anybody who wants to learn about an interesting and important field of computer science. The additional chapters of advanced material on Gaussian process, MCMC and mixture modeling provide an ideal basis for practical projects, without disturbing the very clear and readable exposition of the basics contained in the first part of the book." —Gavin Cawley, Senior Lecturer, School of Computing Sciences, University of East Anglia, UK "This

book could be used for junior/senior undergraduate students or first-year graduate students, as well as individuals who want to explore the field of machine learning...The book introduces not only the concepts but the underlying ideas on algorithm implementation from a critical thinking perspective." —Guangzhi Qu, Oakland University, Rochester, Michigan, USA

Reasoning about Rational Agents-Michael Wooldridge 2003-01-01 This book focuses on the belief-desire-intention (BDI) model of rational agents, which recognizes the primacy of beliefs, desires, and intentions in rational action. One goal of modern computer science is to engineer computer programs that can act as autonomous, rational agents; software that can independently make good decisions about what actions to perform on our behalf and execute those actions. Applications range from small programs that intelligently search the Web buying and selling goods via electronic commerce, to autonomous space probes. This book focuses on the belief-desire-intention (BDI) model of rational agents, which recognizes the primacy of beliefs, desires, and intentions in rational action. The BDI model has three distinct strengths: an underlying philosophy based on practical reasoning in humans, a software architecture that is implementable in real systems, and a family of logics that support a formal theory of rational agency.The book introduces a BDI logic called LORA (Logic of Rational Agents). In addition to the BDI component, LORA contains a temporal component, which allows one to represent the dynamics of how agents and

their environments change over time, and an action component, which allows one to represent the actions that agents perform and the effects of the actions. The book shows how LORA can be used to capture many components of a theory of rational agency, including such notions as communication and cooperation.

An Introduction to Machine Learning-William A. Stubblefield 1992

Artificial Intelligence and the Future of Defense-Stephan De Spiegeleire 2017-05-17 Artificial intelligence (AI) is on everybody's minds these days. Most of the world's leading companies are making massive investments in it. Governments are scrambling to catch up. Every single one of us who uses Google Search or any of the new digital assistants on our smartphones has witnessed first-hand how quickly these developments now go. Many analysts foresee truly disruptive changes in education, employment, health, knowledge generation, mobility, etc. But what will AI mean for defense and security? In a new study HCSS offers a unique perspective on this question. Most studies to date quickly jump from AI to autonomous (mostly weapon) systems. They anticipate future armed forces that mostly resemble today's armed forces, engaging in fairly similar types of activities with a still primarily industrial-kinetic capability bundle that would increasingly be AI-augmented. The authors of this study argue that AI may have a far more transformational impact on defense and security whereby

new incarnations of ‘armed force’ start doing different things in novel ways. The report sketches a much broader option space within which defense and security organizations (DSOs) may wish to invest in successive generations of AI technologies. It suggests that some of the most promising investment opportunities to start generating the sustainable security effects that our polities, societies and economies expect may lie in in the realms of prevention and resilience. Also in those areas any large-scale application of AI will have to result from a preliminary open-minded (on all sides) public debate on its legal, ethical and privacy implications. The authors submit, however, that such a debate would be more fruitful than the current heated discussions about ‘killer drones’ or robots. Finally, the study suggests that the advent of artificial super-intelligence (i.e. AI that is superior across the board to human intelligence), which many experts now put firmly within the longer-term planning horizons of our DSOs, presents us with unprecedented risks but also opportunities that we have to start to explore. The report contains an overview of the role that ‘intelligence’ - the computational part of the ability to achieve goals in the world - has played in defense and security throughout human history; a primer on AI (what it is, where it comes from and where it stands today - in both civilian and military contexts); a discussion of the broad option space for DSOs it opens up; 12 illustrative use cases across that option space; and a set of recommendations for - especially - small- and medium sized defense and security organizations.

The Age of Spiritual Machines-Ray Kurzweil 2000-01-01
Ray Kurzweil is the inventor of the most innovative and compelling technology of our era, an international authority on artificial intelligence, and one of our greatest living visionaries. Now he offers a framework for envisioning the twenty-first century--an age in which the marriage of human sensitivity and artificial intelligence fundamentally alters and improves the way we live. Kurzweil's prophetic blueprint for the future takes us through the advances that inexorably result in computers exceeding the memory capacity and computational ability of the human brain by the year 2020 (with human-level capabilities not far behind); in relationships with automated personalities who will be our teachers, companions, and lovers; and in information fed straight into our brains along direct neural pathways. Optimistic and challenging, thought-provoking and engaging, The Age of Spiritual Machines is the ultimate guide on our road into the next century.

Artificial Intelligence and Heuristic Programming-Bernard Meltzer 1971

A Guide to Expert Systems-Donald Arthur Waterman 1986
A boy & his grandparents live near a cursed wood. the boy longs for a dog - but the ungainly creature found by his grandfatherhardly fits his image of the perfect pet. But then the dog starts to grow human ears!

Encyclopedia of Artificial Intelligence-Stuart C. Shapiro 1992

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