

# The Essence Of Artificial Intelligence By Alison Cawsey

This is a practical, highly-accessible introduction to the state-of-the-art in artificial intelligence. This book demystifies artificial intelligence, making it concrete and transparent. It covers knowledge representation, inference, expert systems, natural language processing, machine learning, neural networks, agents, robots, and more. The book includes extensive self-test questions, case studies, figures, worked examples, sample algorithms and a complete glossary. For anyone interested in artificial intelligence; no prior background is required.

The Essence of Artificial Intelligence Pearson

This book presents a summary of artificial intelligence and machine learning techniques in its first two chapters. The remaining chapters of the book provide everything one must know about the basic artificial intelligence to modern machine intelligence techniques including the hybrid computational intelligence technique, using the concepts of several real-life solved examples, design of projects and research ideas. The solved examples with more than 200 illustrations presented in the book are a great help to instructors, students, non-AI professionals, and researchers. Each example is discussed in detail with encoding, normalization, architecture, detailed design, process flow, and sample input/output. Summary of the fundamental concepts with solved examples is a unique combination and highlight of this book.

Artificial intelligence has become an indispensable part of our lives in recent years, affecting all aspects from business and leisure to transport and health care. This book presents the proceedings of the 23rd edition of the International Conference of the Catalan Association for Artificial Intelligence (CCIA), an annual event that serves as a meeting point for researchers in Artificial Intelligence in the area of the Catalan speaking territories and from around the world. The 2021 edition was held online as a virtual conference from 20 - 22 October 2021 due to the COVID-19 pandemic. The book contains 42 long papers and 9 short papers, carefully reviewed and selected. The papers cover all aspects of artificial intelligence and are divided under six section headings: combinatorial problem solving and logics for artificial intelligence; sentiment analysis and text analysis; data science and decision support systems; machine learning; computer vision; and explainability and argumentation. Abstracts of the 2 invited talks delivered at the conference by Prof. Patty Kostkova and Prof. João Marques-Silva are also included. Offering a state of the art overview of the subject from a regional perspective, the book will be of interest to all those working in the field of artificial intelligence.

This book presents advanced research studies on the topic of artificial intelligence as a component of social and economic relations and processes. It gathers research papers from the International Research-to-Practice Conference "The 21st Century from the Positions of Modern Science: Intellectual, Digital and Innovative Aspects" (May 23–24, 2019, Nizhny Novgorod, Russia) and the International Research-to-Practice Conference "Economics of Pleasure: a Science of Enjoying Economic Activities" (October 3–5, 2019, Prague, Czech Republic). Both conferences were organized by the Autonomous Non-Profit Organization "Institute of Scientific Communications"

(Volgograd). What sets this book apart from other publications on the topic of artificial intelligence is that it approaches AI not as a technological tool, but as an economic entity. Bringing together papers by representatives of various fields of social and human knowledge, it systematically reflects on various economic, social, and legal aspects of the creation, application, and development of artificial intelligence. Given the multidisciplinary nature of its content, the book will appeal to a broad target audience, including those engaged in developing AI (scientific research institutes and universities), and Industry 4.0 enterprises interested in its implementation, as well as state regulators for the digital economy.

In the chapters in Part I of this textbook the author introduces the fundamental ideas of artificial intelligence and computational intelligence. In Part II he explains key AI methods such as search, evolutionary computing, logic-based reasoning, knowledge representation, rule-based systems, pattern recognition, neural networks, and cognitive architectures. Finally, in Part III, he expands the context to discuss theories of intelligence in philosophy and psychology, key applications of AI systems, and the likely future of artificial intelligence. A key feature of the author's approach is historical and biographical footnotes, stressing the multidisciplinary character of the field and its pioneers. The book is appropriate for advanced undergraduate and graduate courses in computer science, engineering, and other applied sciences, and the appendices offer short formal, mathematical models and notes to support the reader.

Although still in its earliest stages, artificial intelligence (AI) is radically transforming all aspects of society. With the immanent emergence of Artificial Super Intelligence (ASI) and the illusory temptations of "transhumanism," humankind stands at a crossroads. Nicanor Perlas makes an urgent plea in this book. It is imperative, he says, that we take immediate steps to ensure that digitized technology is aligned to human values and priorities. Otherwise, ASI will kill the essence of our humanity. Furthermore, if we do not master it now, ASI will transform humanity into its own image--ultimately, it will destroy the human race. AI experts have not offered a single cogent solution to this existential threat. Rudolf Steiner, however, not only foresaw these developments, but also provided clear alternatives. Steiner--who developed a contemporary scientific approach to spirituality--provided philosophical, ontological, and social innovations to save humanity from this technological abyss. It is the task of the global anthroposophic movement to pioneer this civilization-saving work--to establish spiritual-scientific ideas in mainstream culture that would allow AI to emerge in a healthier societal context. Perlas offers an overview of the AI phenomenon, together with its related transhuman concepts of "perfecting humanity," outlining the critical internal and external responses needed to meet them consciously. In particular, the author addresses the movement connected to the work of Rudolf Steiner, indicating its all-important tasks to cooperate with progressive individuals and movements, including scientists and civil society activists; to mobilize its "daughter" movements for action; and, ultimately, to cooperate with the spiritual powers that have guided and served humanity since the dawn of time. This, says Perlas, is humanity's last stand. Failure is not an option.

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.

Alan Turing pioneered many research areas such as artificial intelligence, computability, heuristics and pattern formation. Nowadays at the information age, it is hard to imagine how the world would be without computers and the Internet. Without Turing's work, especially the core concept of Turing Machine at the heart of every computer, mobile phone and microchip today, so many things on which we are so dependent would be impossible. 2012 is the Alan Turing year -- a centenary celebration of the life and work of Alan Turing. To celebrate Turing's legacy and follow the footsteps of this brilliant mind, we take this golden opportunity to review the latest developments in areas of artificial intelligence, evolutionary computation and metaheuristics, and all these areas can be traced back to Turing's pioneer work. Topics include Turing test, Turing machine, artificial intelligence, cryptography, software testing, image processing, neural networks, nature-inspired algorithms such as bat algorithm and cuckoo search, and multiobjective optimization and many applications. These reviews and chapters not only provide a timely snapshot of the state-of-art developments, but also provide inspiration for young researchers to carry out potentially ground-breaking research in the active, diverse research areas in artificial intelligence, cryptography, machine learning, evolutionary computation, and nature-inspired metaheuristics. This edited book can serve as a timely reference for graduates, researchers and engineers in artificial intelligence, computer sciences, computational intelligence, soft computing, optimization, and applied sciences.

The Prentice Hall Essence of Computer Science Series provides a concise, practical and uniform introduction to the core components of an undergraduate Computer Science degree. Acknowledging recent changes within higher education, this approach uses a variety of pedagogical tools - case-studies, worked examples and self-test questions - to underpin the student's learning. The Essence of Human-Computer Interaction provides a concise, no-nonsense introduction to studying HCI. It covers all of the essential elements of a standard Human-Computer Interaction course, including Artificial Intelligence, Psychology and Cognitive Science, and suggests ways in which to further develop areas of interest in the subject. It provides examples from everyday life as well as computer systems, such as "real" interfacing problems and solutions. It also includes practical "experiments" for the reader to try, through an examination of subjects such as ergonomics and other HCI issues.

This book gathers peer-reviewed proceedings of the 3rd International Conference on Innovative Computing (IC 2020). This book aims to provide an open forum for discussing recent advances and emerging trends in information technology, science, and engineering. Themes within the scope of the conference include Communication Networks, Business Intelligence and Knowledge Management, Web Intelligence, and any related fields that depend on the development of information technology. The respective contributions presented here cover a wide range of topics, from databases and data mining, networking and communications, the web and Internet of Things, to embedded systems, soft computing, social network analysis, security and privacy, optical communication, and ubiquitous/pervasive computing. Readers such as students, researchers, and industry professionals in the fields of cloud computing, Internet of Things, machine learning, information security, multimedia systems, and information technology benefit from this comprehensive overview of the latest advances in information technology. The book can also benefit young investigators looking to start a new research program.

The book studies artificial intelligence as a new reality and a perspective direction for the modern economy's development, as well as its future technological basis. The book forms a

meta-scientific approach to studying AI, which allows uniting the efforts of scholars from different spheres of science for formation of a comprehensive idea of AI. The book reflects the meta-scientific approach to the balanced use of human and artificial intelligence and the features of successful development of the information economy under the conditions of technological progress based on artificial intelligence. It describes the implementation of the subject approach in psychology and pedagogy based on artificial intelligence and reflects the political and legal aspects of creating, implementing and developing artificial intelligence. The impact of artificial intelligence on the economy and financial services is considered, and modernization of management of production and distribution processes and systems based on AI are studied. The target audience of the book includes scholars from different spheres of science who study AI, companies interested in implementation of AI, and government that regulates the issues of development and use of AI.

Artificial Intelligence and PET Imaging, Part 1, An Issue of PET Clinics, E-Book

Artificial intelligence is one of the most important sub-fields of computer science in the present scenario. It refers to the study of intelligence that machines exhibit. It can be any kind of understanding and problem solving properties similar to the human brain. Artificial intelligence research includes topics like perception, reasoning, planning, natural language processing (communication) and learning. This book presents the complex subject of artificial intelligence in the most comprehensible and easy to understand language. While understanding the long-term perspectives of the topics, the book makes an effort in highlighting their impact as a modern tool for the growth of the discipline. The topics covered in this extensive text deal with the core subjects of the area. Those in search of information to further their knowledge will be greatly assisted by this textbook.

Socrates was a very strange child. His lonely existence as a child translated directly to a solitary life as an adult. His only chance at a meaningful existence was to create and enter a cyber utopia. To make his cyber utopia feel real he discovered a way to capture human essences and insert them into this world. Upon entering his cyber world he became trapped and was destined to an eternity in a cyber hell of his creation.

This book presents the 2nd International Conference on Artificial Intelligence and Computer Visions (AICV 2021) proceeding, which took place in Settat, Morocco, from June 28- to 30, 2021. AICV 2021 is organized by the Scientific Research Group in Egypt (SRGE) and the Computer, Networks, Mobility and Modeling Laboratory (IR2M), Hassan 1st University, Faculty of Sciences Techniques, Settat, Morocco. This international conference highlighted essential research and developments in the fields of artificial intelligence and computer visions. The book is divided into sections, covering the following topics: Deep Learning and Applications; Smart Grid, Internet of Things, and Mobil Applications; Machine Learning and Metaheuristics Optimization; Business Intelligence and Applications; Machine Vision, Robotics, and Speech Recognition; Advanced Machine Learning Technologies; Big Data, Digital Transformation, AI and Network Analysis; Cybersecurity; Feature Selection, Classification, and Applications.

Artificial Intelligence (AI) will change the lives of people and businesses more fundamentally than many people can even imagine today. This book illustrates the importance of AI in an era of digitalization. It introduces the foundations of AI and explains its benefits and challenges for companies and entire industries. In this regard, AI is approached not just as yet another technology, but as a fundamental innovation, which will spread into all areas of the economy and life, and will disrupt business processes and business models in the years to come. In turn, the book assesses the potential that AI holds, and clarifies the framework that is necessary for pursuing a responsible approach to AI. In a series of best-practice cases, the book subsequently highlights a broad range of sectors and industries, from production to services; from customer service to marketing and sales; and in industries like retail, health care, energy, transportation and many more. In closing, a dedicated chapter outlines a

roadmap for a specific corporate AI journey. No one can ignore intensive work with AI today - neither as a private person, let alone as a top performer in companies. This book offers a thorough, carefully crafted, and easy to understand entry into the field of AI. The central terms used in the AI context are given a very good explanation. In addition, a number of cases show what AI can do today and where the journey is heading. An important book that you should not miss! Professor Dr. Harley Krohmer University of Bern "Inspiring, thought provoking and comprehensive, this book is wittingly designed to be a catalyst for your individual and corporate AI journey." Avo Schönbohm, Professor at the Berlin School of Economics and Law, Enterprise Game Designer at LUDEO and Business Punk

President Putin's explicit declaration that the country that makes progress in artificial intelligence will rule the world has launched a new race for dominance. In this era of cognitive competition and total automation, every country understands that it must rapidly adopt AI or go bust. To stay competitive a country must have a strategy. But how should a government proceed? What areas it must focus on? Where should it even start? This book provides answers to these important, yet pertinent, questions and more. Presenting the viewpoints of global experts and thought leaders on key issues relating to AI and government policies, this book directs us to the future.

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.

This book constitutes the refereed proceedings of two International Workshops held as parallel events of the 15th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2019, in Hersonissos, Crete, Greece, in May 2019: the 8th Mining Humanistic Data Workshop, MHDW 2019, and the 4th Workshop on 5G-Putting Intelligence to the Network Edge, 5G-PINE 2019. The 6 full papers and 4 short papers presented at MHDW 2019 were carefully reviewed and selected from 13 submissions; out of the 14 papers submitted to 5G-PINE 2019, 6 were accepted as full papers and 1 as short paper. The MHDW papers focus on the application of innovative as well as existing data matching, fusion and mining and knowledge discovery and management techniques (such as decision rules, decision trees, association rules, ontologies and alignments, clustering, filtering, learning, classifier systems, neural networks, support vector machines, preprocessing, post processing, feature selection, visualization techniques) to data derived from all areas of humanistic sciences, e.g., linguistic, historical, behavioral, psychological, artistic, musical, educational, social, and ubiquitous computing and bioinformatics. The papers presented at 5G-PINE focus on several innovative findings coming directly from modern European research in the area of modern 5G telecommunications infrastructures and related innovative services and cover a wide variety of technical and business aspects promoting options for growth and development. Human annihilation has never been so easy. Artificial intelligence-guided genetic-engineered nanotechnology and robotics (AI-GNR) are widely recognized as our most transformative technological revolution ever, yet we do not even have a common moral language to unite our pluralistic world to prevent an AI apocalypse should this revolution explode out of our control. This book is the first known comprehensive global bioethical analysis of AI and AI-GNR by defining the Thomistic-Aristotelian personalist foundation of the rights and duties-based social contract framework of the United Nations, and then applying it to AI. As such, it creates a compelling approach which will appeal to scientists, health professionals, policy makers,

politicians, students, and anyone interested in our shared survival around shared solutions. Master's Thesis from the year 2019 in the subject Sociology - Culture, Technology, Peoples / Nations, grade: very good, Ethiopian Civil Service University (leadership and good governance), course: Law, language: English, abstract: Artificial intelligence is one of the newly emerging technologies which are creating new challenges to the existing laws and raising serious survival questions. Regarding the relation of artificial intelligence and the law, there are serious concerns on how the law regulates artificial intelligence as it is now being more difficult for traditional public regulatory bodies to control the development of AI. Some form of regulation is likely necessary to protect society from harm. Due to the power and complexity of this new emerging technology, Regulation can, indeed, be very impactful, but it also carries risks. This thesis tried to solve this difficulty and examined different issue to answer whether artificial intelligence should be regulated or not and, if so, which basic principles should be followed and who are the suitable organs to regulate it. It also demonstrated the intricacy of this newly emerging technology as it has its own positive and negative consequences on the life of the society. Since the AI technology is prevailing constantly from time to time and its involvement is increasing in every aspect of activities such as factories or hospitals, the particular research emphasized the need for the development of AI that reconciles with its Ethical, legal as well as social issues. To this end, the issue of ex-ante regulation was underscored as a necessity to handle the potential challenges of AI in a formal way.

Intelligence Science is an interdisciplinary subject dedicated to joint research on basic theory and technology of intelligence by brain science, cognitive science, artificial intelligence and others. Brain science explores the essence of brain research on the principle and model of natural intelligence at the molecular, cell and behavior level. Cognitive science studies human mental activity, such as perception, learning, memory, thinking, consciousness etc. In order to implement machine intelligence, artificial intelligence attempts simulation, extension and expansion of human intelligence using artificial methodology and technology. Research scientists from the above three disciplines work together to explore new concepts, new theories, and methodologies. This book will introduce the concept and methodology of intelligence science systematically. The whole book is divided into 18 chapters altogether. It can be regarded as a textbook in courses of intelligence science, cognitive science, cognitive informatics etc. for senior and graduate students. It has important reference value for researchers engaged in fields such as intelligence science, brain science, cognitive science, neural science, artificial intelligence, psychology and so on.

Contents: Introduction Foundation of Neurophysiology Neural Computation Mind Model Perceptual Cognition Visual Information Processing Auditory Information Processing Computational Linguistics Learning Memory Thought Intelligence Development Emotion and Affect Artificial Immune System Consciousness Symbolic Logic Prospects Readership: Graduate and postgraduate students and professionals in the field of artificial intelligence. Keywords: Intelligence; Emotion; Immune System; Consciousness; Symbolic Logic; Machine Proves; Brain-Like Machine Key Features: Presents the framework of the new interdisciplinary subject and foundation of the series on intelligence science Provides a walkthrough to the key issues of brain science, cognitive science and artificial intelligence Bringing together diverse viewpoints

and expertise from multidisciplinary communities, the book explores the basic theory and technology of intelligence to build a brain-like machine with human-level intelligence

The notion of artificial intelligence (AI) often sparks thoughts of characters from science fiction, such as the Terminator and HAL 9000. While these two artificial entities do not exist, the algorithms of AI have been able to address many real issues, from performing medical diagnoses to navigating difficult terrain to monitoring possible failures. From the successful application of deep learning (DL) in AlphaGo in 2012 to the recent advances in edge computing, artificial intelligence (AI) has continued to develop over the years. In the face of the current sweeping trend of AI, ensemble learning (EL) is expected to be further applied to DL and AI for developing higher-level ensemble systems in the future. Moreover, it could become an important step for achieving "The Master Algorithm" proposed by Prof. Pedro Domingos. In light of this, EL will continue to make a significant contribution to future development. The purpose of this book is to provide insights into EL for readers not majoring in computer science or related subjects, introduce the latest development and applications of EL; in particular, share its practical applications in various fields. Accordingly, this book intends to present theoretical parts relating to mathematics and computing in a simple and concise manner. The examples and practical use of EL have been used to explain methods that utilize EL to solve readers' issues in their fields, which demonstrates the essence of EL for practical applications. While many AI and ML books are available on the market, most require a certain level of mathematical and machine learning (ML) knowledge. Complicated theories of mathematics and computation may be intimidating for people without a background in computer science and engineering, such as biological and medical researchers. It would be unfortunate if they were to miss the opportunity to use EL as a practical tool to solve data analysis problems at hand. Moreover, EL is usually introduced in the later or advanced chapters of AI and ML books. Beginners in ML, or readers without a technical background, are likely to be frustrated by mathematical or technical terms that only appear occasionally in the book or be anxious about complicated mathematical and computational theories related to classification algorithms. It would be regrettable if they were intimidated, and therefore, missed the opportunity to learn and use EL. From a practical perspective, existing classification techniques, such as decision trees with the C4.5 algorithm, support vector machines, and neural networks are now relatively mature and have been proven to be effective. For readers without a technical background, it is not essential to understand the complicated mathematical and computational theories behind the above techniques. Instead, it is recommended to grasp the logic and meaning of parameters in these classification algorithms and directly conduct tests using EL. Learning through practice can help readers to establish computational thinking. It is the best approach to learning EL, ML, AI, and DL. Furthermore, this book provides references and recommended reading for each technique to satisfy the curiosity of some readers with regard to mathematical theories and algorithms so that they can acquire further knowledge and answer their questions. Finally, the hope is that readers can be made aware, through practical use of EL, that they can build a robust ensemble system and solve problems in their areas without having to learn the absolute details of specific ML algorithms and mathematics behind the algorithms. This book provides insights into EL from worldwide

experts and scholars in various fields. This book extensively introduces and discusses the application of EL in various fields and the current and future research directions of its novel applications. It also reviews some of the more popular areas in which EL has received widespread attention in recent years in the ML and AI. Each chapter opens with an introduction to ML and EL techniques, and then, analyzes the applications of EL in different fields, such as signal and image processing, medical care, education, geology, and agriculture. More than two experts and scholars in related fields acted as reviewers for the peer review of each chapter. It is hoped that these applications in various fields can inspire readers to use EL in practice.

This book presents the first broad reflection on the challenges, opportunities, and implications of Artificial Intelligence (AI) in the Gulf Cooperation Council (GCC). Unique results and insights are derived through case studies from diverse disciplines, including engineering, economics, data science, policy-making, governance, and humanscience. Particularly related to these softer disciplines, we make some unexplored yet topical contributions to the literature, with a focus on the GCC (but by no means limited to it), including AI and implications for women, Islamic schools of thought on AI, and the power of AI to help deliver wellbeing and happiness in cities and urban spaces. Finally, the readers are provided with a synthesis of ideas, lessons learned, and a path forward based on the diverse content of the chapters. The book caters to the educated non specialist with interest in AI, targeting a wide audience including professionals, academics, government officials, policymakers, entrepreneurs, and non-governmental organizations. Elie Azar is an Associate Professor of Industrial and Systems Engineering at Khalifa University of Science and Technology in Abu Dhabi, UAE. His research on data-driven methods to improve the built environment's performance is frequently featured in leading peer-reviewed journals and conferences, earning him multiple academic awards and distinctions. Elie is also the author of books on Sustainability and Smart Cities in the Gulf. Anthony N. Haddad is Senior Manager for Pan-MENA Initiatives at Amazon. Anthony's work at Amazon is focused on building scalable logistics and retail products and services in the cross-border ecommerce space, including new country expansions. Previously, Anthony worked in strategy management consulting in the GCC, advising clients across government, telecommunications and national education systems.

The impact of information technology in the field of military decision making is superficially less visible than that of a number of other weapon developments, though its importance has grown steadily since the beginning of the 1980s. Owing to its potential role in modern weapon systems and the prospect of its inclusion as an essential ingredient in many military projects such as the Strategic Defence Initiative, it has become the focus of special interest and efforts. This book is the first attempt to present a broad overview of the prospects for information technology in general, and machine intelligence in particular, in the context of international security. The dangers and promises of weapon and arms control applications of computers and artificial intelligence to decision-making processes are analysed in a technical, strategic, and political perspective by experts from six different countries. In an introductory chapter, Allan Din presents a generic overview of artificial intelligence and its prospects. Thirteen contributors then discuss the conceptual and technical framework of artificial intelligence, analyse implications for weapon systems and strategy, and discuss

possible applications to arms control verification and modelling.

As industries are rapidly being digitalized and information is being more heavily stored and transmitted online, the security of information has become a top priority in securing the use of online networks as a safe and effective platform. With the vast and diverse potential of artificial intelligence (AI) applications, it has become easier than ever to identify cyber vulnerabilities, potential threats, and the identification of solutions to these unique problems. The latest tools and technologies for AI applications have untapped potential that conventional systems and human security systems cannot meet, leading AI to be a frontrunner in the fight against malware, cyber-attacks, and various security issues. However, even with the tremendous progress AI has made within the sphere of security, it's important to understand the impacts, implications, and critical issues and challenges of AI applications along with the many benefits and emerging trends in this essential field of security-based research. Research Anthology on Artificial Intelligence Applications in Security seeks to address the fundamental advancements and technologies being used in AI applications for the security of digital data and information. The included chapters cover a wide range of topics related to AI in security stemming from the development and design of these applications, the latest tools and technologies, as well as the utilization of AI and what challenges and impacts have been discovered along the way. This resource work is a critical exploration of the latest research on security and an overview of how AI has impacted the field and will continue to advance as an essential tool for security, safety, and privacy online. This book is ideally intended for cyber security analysts, computer engineers, IT specialists, practitioners, stakeholders, researchers, academicians, and students interested in AI applications in the realm of security research.

Discover what AI can do for your business with this approachable and comprehensive resource *Reimagining Businesses with AI* acquaints readers with both the business challenges and opportunities presented by the rapid growth and progress of artificial intelligence. The accomplished authors and digital executives of the book provide you with a multi-industry approach to understanding the intersection of AI and business. The book walks you through the process of recognizing and capitalizing on AI's potential for your own business. The authors describe: How to build a technological foundation that allows for the rapid implementation of artificial intelligence How to manage the disruptive nature of powerful technology while simultaneously harnessing its capabilities The ethical implications and security and privacy concerns raised by the spread of AI Perfect for business executives and managers who seek a jargon-free and approachable manual on how to implement artificial intelligence in everyday operations, *Reimagining Businesses with AI* also belongs on the bookshelves of anyone curious about the interaction between artificial intelligence and business.

AI is radically transforming business. Are you ready? Look around you. Artificial intelligence is no longer just a futuristic notion. It's here right now--in software that senses what we need, supply chains that "think" in real time, and robots that respond to changes in their environment. Twenty-first-century pioneer companies

are already using AI to innovate and grow fast. The bottom line is this: Businesses that understand how to harness AI can surge ahead. Those that neglect it will fall behind. Which side are you on? In *Human + Machine*, Accenture leaders Paul R. Daugherty and H. James (Jim) Wilson show that the essence of the AI paradigm shift is the transformation of all business processes within an organization--whether related to breakthrough innovation, everyday customer service, or personal productivity habits. As humans and smart machines collaborate ever more closely, work processes become more fluid and adaptive, enabling companies to change them on the fly--or to completely reimagine them. AI is changing all the rules of how companies operate. Based on the authors' experience and research with 1,500 organizations, the book reveals how companies are using the new rules of AI to leap ahead on innovation and profitability, as well as what you can do to achieve similar results. It describes six entirely new types of hybrid human + machine roles that every company must develop, and it includes a "leader's guide" with the five crucial principles required to become an AI-fueled business. *Human + Machine* provides the missing and much-needed management playbook for success in our new age of AI. **BOOK PROCEEDS FOR THE AI GENERATION** The authors' goal in publishing *Human + Machine* is to help executives, workers, students and others navigate the changes that AI is making to business and the economy. They believe AI will bring innovations that truly improve the way the world works and lives. However, AI will cause disruption, and many people will need education, training and support to prepare for the newly created jobs. To support this need, the authors are donating the royalties received from the sale of this book to fund education and retraining programs focused on developing fusion skills for the age of artificial intelligence.

*The Indefinite Article: Anxiety and the Essence of Artificial Intelligence* focuses on the implications of technological surveillance for human being. It shows that human privacy is fragile and susceptible to coercion by both visible and invisible social forces realized by artificial intelligence that formalizes and universalizes human behavioral characteristics in order to construct personalities and which cannot be resisted with traditional notions of individual liberty and respect for human dignity. The way lies in the same anxious questioning that drives publicly oriented persons to welcome boundaries that are inscribed upon them as identities under conditions of mass surveillance. The invasion of private life by data collection mechanisms forces the socially constructed subject to imagine itself alone under a microscope. Roth carefully demonstrates how this dystopia can be inverted through a critical inquiry that glares back at the lenses of that power: understanding the problem is already to glimpse a way out.

"The ever expanding abundance of information and computing power enables researchers and users to tackle highly interesting issues for the first time, such as applications providing personalized access and interactivity to multimodal information based on user preferences and semantic concepts or human-

machine interface systems utilizing information on the affective state of the user. The purpose of this book is to provide insights on how today's computer engineers can implement AI in real world applications. Overall, the field of artificial intelligence is extremely broad. In essence, AI has found applications, in one way or another, in every aspect of computing and in most aspects of modern life. Consequently, it is not possible to provide a complete review of the field in the framework of a single book, unless if the review is broad rather than deep. In this book we have chosen to present selected current and emerging practical applications of AI, thus allowing for a more detailed presentation of topics. The book is organized in four parts; General Purpose Applications of AI; Intelligent Human-Computer Interaction; Intelligent Applications in Signal Processing and eHealth; and Real world AI applications in Computer Engineering."

Spiking neural networks (SNN) are biologically inspired computational models that represent and process information internally as trains of spikes. This monograph book presents the classical theory and applications of SNN, including original author's contribution to the area. The book introduces for the first time not only deep learning and deep knowledge representation in the human brain and in brain-inspired SNN, but takes that further to develop new types of AI systems, called in the book brain-inspired AI (BI-AI). BI-AI systems are illustrated on: cognitive brain data, including EEG, fMRI and DTI; audio-visual data; brain-computer interfaces; personalized modelling in bio-neuroinformatics; multisensory streaming data modelling in finance, environment and ecology; data compression; neuromorphic hardware implementation. Future directions, such as the integration of multiple modalities, such as quantum-, molecular- and brain information processing, is presented in the last chapter. The book is a research book for postgraduate students, researchers and practitioners across wider areas, including computer and information sciences, engineering, applied mathematics, bio- and neurosciences.

This book presents an overview of how machine learning and data mining techniques are used for tracking and preventing diseases. It covers several aspects such as stress level identification of a person from his/her speech, automatic diagnosis of disease from X-ray images, intelligent diagnosis of Glaucoma from clinical eye examination data, prediction of protein-coding genes from big genome data, disease detection through microscopic analysis of blood cells, information retrieval from electronic medical record using named entity recognition approaches, and prediction of drug-target interactions. The book is suitable for computer scientists having a bachelor degree in computer science. The book is an ideal resource as a reference book for teaching a graduate course on AI for Medicine or AI for Health care. Researchers working in the multidisciplinary areas use this book to discover the current developments. Besides its use in academia, this book provides enough details about the state-of-the-art algorithms addressing various biomedical domains, so that it could be used by industry practitioners who want to implement AI techniques to analyze

the diseases. Medical institutions use this book as reference material and give tutorials to medical experts on how the advanced AI and ML techniques contribute to the diagnosis and prediction of the diseases.

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