

Unlocking Precision Medicine (Encounter Intelligence)

There exists a profound conflict at the heart of oncology drug development. The efficiency of the drug development process is falling, leading to higher costs per approved drug, at the same time personalised medicine is limiting the target. As the global economic burden of cancer increases, the current paradigm in drug development is unsustainable. In this book, we discuss the development of techniques in machine learning for improving the efficiency of oncology drug development and precision treatment. We consider how to structure data for drug repurposing and target identification, how to improve clinical trials and how patients may view artificial intelligence.

Along with a shift towards value-based care, a digital transformation is under way in health care. However, health care enterprises are having a hard time keeping up with advances in information technology. Organizations that could once rely on a strategy to deliver solutions now must implement changes on a near real-time basis. Complicating matters is the emergence of new data sources, new technology architectures and models, and new methods to analyze an avalanche of data. Understanding the competitive landscape for digital health and advanced analytics solutions that are harnessing data to unlock insights. It reveals a set of key principles, or universal themes, for success in the digital health marketplace. With information technology specialist, a digital health startup or technology firm with a strategic focus on health care, a venture capitalist, or just interested in the industry structure and the emerging technology landscape in health care, you will find this book while creating a sustainable competitive advantage. Take a key step in navigating the exciting transformation of health care, and harness the power of data and analytics with The Big Unlock.

Market access is the process by which a pharmaceutical company gets its product available on the market after having obtained a marketing authorization from a regulatory agency and by which the product becomes available for all patients. Marketing authorization. It covers a group of activities intended to provide access to the appropriate medicine for the appropriate group of patients at the appropriate price (in most countries). Market Access may also be seen as activities that overcome potential barriers, such as non-optimal price and reimbursement levels, the restriction of the scope of prescribing for the drug or complicated prescription writing or funding procedures. Since there are cultural differences among countries, market access will be culturally sensitive. Pharmaceutical Market Access in emerging markets has been extensively discussed in our previous book, published in 2016. The present book focuses on developed markets with the goal of helping students, academics, regulators, workers, and decision makers understand the environment in developed markets.

This book presents a compilation of the most recent implementation of artificial intelligence methods for solving different problems generated by the COVID-19. The problems addressed came from different fields and not only from medicine. This book explores different areas of machine and deep learning, advanced image processing, computational intelligence, IoT, robotics and automation, optimization, mathematical modeling, neural networks, information technology, big data, data science, and so on. Moreover, the chapters include the theory and methodologies used to provide an overview of applying these tools to the useful contribution to help to face the emerging disaster. The book is primarily intended for researchers, doctors, and readers interested in these subject matters. The book is useful also as rich case studies and project proposals for postgraduate courses in those specializations.

Global Trends 2030

Procedures and Strategies

Artificial Intelligence

Artificial Intelligence in Society

Life Force

Biomedical Informatics

Accelerated Path to Cures provides a transformative perspective on the power of combining advanced computational technologies, modeling, bioinformatics and machine learning approaches with nonclinical and clinical experimentation to accelerate drug development. This book discusses the application of advanced modeling technologies, from target identification and validation to nonclinical studies in animals to Phase 1-3 human clinical trials and post-approval monitoring, as alternative models of drug development. As a case of successful integration of computational modeling and drug development, we discuss the development of oral small molecule therapeutics for inflammatory bowel disease, from the application of docking studies to screening new chemical entities to the development of next-generation in silico human clinical trials from large-scale clinical data. Additionally, this book illustrates how modeling techniques, machine learning, and informatics can be utilized effectively at each stage of drug development to advance the progress towards predictive, preventive, personalized, precision medicine, and thus provide a successful framework for Path to Cures.

Foundational Handbook of Artificial Intelligence in Healthcare and Bioscience: A User Friendly Guide for IT Professionals, Healthcare Providers, Researchers, and Clinicians uses color-coded illustrations to explain AI from its basics to modern technologies. Other sections cover extensive, current literature research and citations regarding AI's role in the business and clinical aspects of health care. The book provides readers with a unique opportunity to appreciate AI technology in practical terms, understand its applications, and realize its profound influence on the clinical and business aspects of health care. Artificial Intelligence is a disruptive technology that is having a profound and growing influence on the business of health care as well as medical diagnosis, treatment, research and clinical delivery. The AI relationships in health care are complex, but understandable, especially when discussed and developed from their foundational elements through to their practical applications in health care. Provides an illustrated, foundational guide and comprehensive descriptions of what Artificial Intelligence is and how it functions Integrates a comprehensive discussion of AI applications in the business of health care Presents in-depth clinical and AI-related discussions on diagnostic medicine, therapeutic medicine, and prevalent disease categories with an emphasis on immunology and genetics, the two categories most influenced by AI Includes comprehensive coverage of a variety of AI treatment applications, including medical/pharmaceutical care, nursing care, stem cell therapies, robotics, and 10 common disease categories with AI applications

Augmenting Neurological Disorder Prediction and Rehabilitation Using Artificial Intelligence focuses on how the neurosciences can benefit from advances in AI, especially in areas such as medical image analysis for the improved diagnosis of Alzheimer's disease, early detection of acute neurologic events, prediction of stroke, medical image segmentation for quantitative evaluation of neuroanatomy and vasculature, diagnosis of Alzheimer's Disease, autism spectrum disorder, and other key neurological disorders. Chapters also focus on how AI can help in predicting stroke recovery, and the use of Machine Learning and AI in personalizing stroke rehabilitation therapy. Other sections delve into Epilepsy and the use of Machine Learning techniques to detect epileptogenic lesions on MRIs and how to understand neural networks. Provides readers with an understanding on the key applications of artificial intelligence and machine learning in the diagnosis and treatment of the most important neurological disorders Integrates recent advancements of artificial intelligence and machine learning to the evaluation of large amounts of clinical data for the early detection of disorders such as Alzheimer's Disease, autism spectrum disorder, Multiple Sclerosis, headache disorder, Epilepsy, and stroke Provides readers with illustrative examples of how artificial intelligence can be applied to outcome prediction, neurorehabilitation and clinical exams, including a wide range of case studies in predicting and classifying neurological disorders

In this instant New York Times bestseller, Angela Duckworth shows anyone striving to succeed that the secret to outstanding achievement is not talent, but a special blend of passion and persistence she calls "grit."

"Inspiration for non-genius everywhere" (People). The daughter of a scientist who frequently noted her lack of "genius," Angela Duckworth is now a celebrated researcher and professor. It was her early eye-opening stints in teaching, business consulting, and neuroscience that led to her hypothesis about what really drives success: not genius, but a unique combination of passion and long-term perseverance. In Grit, she takes us into the field to visit cadets struggling through their first days at West Point, teachers working in some of the toughest schools, and young finalists in the National Spelling Bee. She also mines fascinating insights from history and shows what can be gleaned from modern experiments in peak performance. Finally, she shares what she's learned from interviewing dozens of high achievers—from JP Morgan CEO Jamie Dimon to New Yorker cartoon editor Bob Mankoff to Seattle Seahawks Coach Pete Carroll. "Duckworth's ideas about the cultivation of tenacity have clearly changed some lives for the better" (The New York Times Book Review). Among Grit's most valuable insights: any effort you make ultimately counts twice toward your goal; grit can be learned, regardless of IQ or circumstances; when it comes to child-rearing, neither a warm embrace nor high standards will work by themselves; how to trigger lifelong interest; the magic of the Hard Thing Rule; and so much more. Winningly personal, insightful, and even life-changing, Grit is a book about what goes through your head when you fall down, and how that—not talent or luck—makes all the difference. This is "a fascinating tour of the psychological research on success" (The Wall Street Journal).

Automated Planning and Acting

Intelligence-Based Medicine

Accelerated Path to Cures

Grit

Artificial Intelligence in Medical Imaging

Algorithms, Methods, and Techniques

In the world of Facebook, Twitter and Yelp, water-cooler conversations with co-workers and backyard small talk with neighbors have moved from the physical world to the digital arena. In this new landscape, organizations ranging from Fortune 500 companies to government agencies to political campaigns continuously monitor online opinions in an effort to guide their actions. Are consumers satisfied with our product? How are our policies perceived? Do voters agree with our platform? Measuring online opinion is more complex than just reading a few posted reviews. Social media is replete with noise and chatter that can contaminate monitoring efforts. By knowing what shapes online opinions, organizations can better uncover the valuable insights hidden in the social media chatter and better inform strategy. This book can help anyone facing the challenge of making sense of social media data to move beyond the current practice of social media monitoring to more comprehensive use of social media intelligence.

"Fascinating. Doidge's book is a remarkable and hopeful portrait of the endless adaptability of the human brain."—Oliver Sacks, MD, author of The Man Who Mistook His Wife for a Hat What is neuroplasticity? Is it possible to change your brain? Norman Doidge's inspiring guide to the new brain science explains all of this and more An astonishing new science called neuroplasticity is overthrowing the centuries-old notion that the human brain is immutable, and proving that it is, in fact, possible to change your brain. Psychoanalyst, Norman Doidge, M.D., traveled the country to meet both the brilliant scientists championing neuroplasticity, its healing powers, and the people whose lives they've transformed—people whose mental limitations, brain damage or brain trauma were seen as unalterable. We see a woman born with half a brain that rewired itself to work as a whole, blind people who learn to see, learning disorders cured, IQs raised, aging brains rejuvenated, stroke patients learning to speak, children with cerebral palsy learning to move with more grace, depression and anxiety disorders successfully treated, and lifelong character traits changed. Using these marvelous stories to probe mysteries of the body, emotion, love, sex, culture, and education, Dr. Doidge has written an immensely moving, inspiring book that will permanently alter the way we look at our brains, human nature, and human potential.

Artificial Intelligence for Computational Modeling of the Heart presents recent research developments towards streamlined and automatic estimation of the digital twin of a patient's heart by combining computational modeling of heart physiology and artificial intelligence. The book first introduces the major aspects of multi-scale modeling of the heart, along with the compromises needed to achieve subject-specific simulations. Reader will then learn how AI technologies can unlock robust estimations of cardiac anatomy, obtain meta-models for real-time biophysical computations, and estimate model parameters from routine clinical data. Concepts are all illustrated through concrete clinical applications. Presents recent advances in computational modeling of heart function and artificial intelligence technologies for subject-specific applications Discusses AI-based technologies for robust anatomical modeling from medical images, data-driven reduction of multi-scale cardiac models, and estimations of physiological parameters from clinical data Illustrates the technology through concrete clinical applications and discusses potential impacts and next steps needed for clinical translation

This book constitutes the refereed proceedings of the 17th Conference on Artificial Intelligence in Medicine, AIME 2019, held in Poznan, Poland, in June 2019. The 22 revised full and 31 short papers presented were carefully reviewed and selected from 134 submissions. The papers are organized in the following topical sections: deep learning; simulation; knowledge representation; probabilistic models; behavior monitoring; clustering, natural language processing, and decision support; feature selection; image processing; general machine learning; and unsupervised learning.

Opportunities, Applications and Risks

Social Media Intelligence

Perceptual Intelligence

Future Crafting in the Genomic Era

WIPO Technology Trends 2019 - Artificial Intelligence

Alternative Worlds

This visionary volume spotlights innovative mental health careers in today's technology-driven climate while inspiring readers to create their own opportunities. Unique and engaging perspectives from professionals across disciplines and job titles describe the thought processes, ingenuity, and discipline behind matching technologies to the needs of specific populations and settings. These non-traditional paths show digital advances as used in frontline, complementary, supplemental, and alternative interventions, in academic and training settings, in private practice, and in systems facing transition. The diversity of these contributions illustrates the myriad openings technology presents for both professional fulfillment and clients' improved well-being. Highlights of the coverage: Crisis in the behavioral health classroom: enhancing knowledge, skills, and attitudes in telehealth training. Using technology in behavior analysis: a journey into telepractice. Making iCBT available in primary care settings: bridging the gap between research and regular healthcare. Improving veterans' access to trauma services through clinical video telehealth. Virtual reality therapy for treatment of psychological disorders. Promoting and evaluating evidence-based telepsychology interventions. For mental health practitioners, practitioners in training, researchers, academics, and policymakers, Career Paths in Telemental Health is an ideabook whose time has come—and continues to unfold.

This book highlights the analytics and optimization issues in healthcare systems, proposes new approaches, and presents applications of innovative approaches in real facilities. In the past few decades, there has been an exponential rise in the application of swarm intelligence techniques for solving complex and intricate problems arising in healthcare. The versatility of these techniques has made them a favorite among scientists and researchers working in diverse areas. The primary objective of this book is to bring forward thorough, in-depth, and well-focused developments of hybrid variants of swarm intelligence algorithms and their applications in healthcare systems.

Intelligence-Based Medicine: Data Science, Artificial Intelligence, and Human Cognition in Clinical Medicine and Healthcare provides a multidisciplinary and comprehensive survey of artificial intelligence concepts and methodologies with real life applications in healthcare and medicine. Authored by a senior physician-data scientist, the book presents an intellectual and academic interface between the medical and the data science domains that is symmetric and balanced. The content consists of basic concepts of artificial intelligence and its real-life applications in a myriad of medical areas as well as medical and surgical subspecialties. It brings section summaries to emphasize key concepts delineated in each section; mini-topics authored by world-renowned experts in the respective key areas for their personal perspective; and a compendium of practical resources, such as glossary, references, best articles, and top companies. The goal of the book is to inspire clinicians to embrace the artificial intelligence methodologies as well as to educate data scientists about the medical ecosystem, in order to create a transformational paradigm for healthcare and medicine by using this emerging new technology. Covers a wide range of relevant topics from cloud computing, intelligent agents, to deep reinforcement learning and internet of everything Presents the concepts of artificial intelligence and its applications in an easy-to-understand format accessible to clinicians and data scientists Discusses how artificial intelligence can be utilized in a myriad of subspecialties and imagined of the future Delineates the necessary elements for successful implementation of artificial intelligence in medicine and healthcare

This book provides a thorough overview of the ongoing evolution in the application of artificial intelligence (AI) within healthcare and radiology, enabling readers to gain a deeper insight into the technological background of AI and the impacts of new and emerging technologies on medical imaging. After an introduction on game changers in radiology, such as deep learning technology, the technological evolution of AI in computing science and medical image computing is described, with explanation of basic principles and the types and subtypes of AI. Subsequent sections address the use of imaging biomarkers, the development and validation of AI applications, and various aspects and issues relating to the growing role of big data in radiology. Diverse real-life clinical applications of AI are then outlined for different body parts, demonstrating their ability to add value to daily radiology practices. The concluding section focuses on the impact of AI on radiology and the implications for radiologists, for example with respect to training. Written by radiologists and IT professionals, the book will be of high value for radiologists, medical/clinical physicists, IT specialists, and imaging informatics professionals.

Deep Medicine

Artificial Intelligence in Healthcare

Artificial Intelligence in Oncology Drug Discovery and Development

Artificial Intelligence for Computational Modeling of the Heart

Impact of Digital Transformation on the Development of New Business Models and Consumer Experience

Toward Precision Medicine

Unlocking Precision Medicine Encounter Books

There is a new trend in anti-cancer therapeutics development: a targeted therapy and precision medicine that targets a subgroup of patients with specific biomarkers. An in vitro diagnostic (IVD) assay is required to identify a subgroup of cancer patients who would benefit from the targeted therapy, or not likely benefit, or have a high risk of side effects from the specific drug treatment. This IVD or medical device is called a companion diagnostic (CDx) assay. It is key to have a robust CDx assay or device for the success of targeted therapy and precision medicine. This book covers the technical, historical, clinical, and regulatory aspects of CDx in precision medicine. Clearly, more and more newly developed oncology drugs will require accompanying CDx assays, and this book, with chapters contributed by renowned oncologists, provides a comprehensive foundation for the knowledge and application of CDx for precision medicine.

New medicines in the pipeline can extend lives, save money, and even help prevent disease before symptoms appear – if we don't discourage their innovators and investors by trying to lower drug prices artificially. Unlocking Precision Medicine explores the environment necessary for creation of these health care game-changers, and explains how the marketplace can effectively make them more affordable to all without killing the golden goose.

The world is witnessing the big bang of scientific discovery, and biotech stocks are on fire! The bio-pharma industry employs over 4 million people just in the US. Potentially 100's of new little biotech companies will develop new generations of medicines and medical devices while creating vast numbers of new millionaires. The new Masters of Bioscience Law & Technology Mini-MBA certificate program, provides leading edge business skills, and leadership training to help propel your career forward. In recent years entrepreneurship has been added to many MBA curriculums, but starting your own business doesn't have to take two years in school and \$100,000+ in tuition. To stimulate prospective leaders, this new program will encourage all applicants to be reviewed for scholarship opportunities. What are you waiting for! Now is the time to jump in! The Biotech "Gold Rush" is On! What are you waiting for?

A More Contested World

Advanced Computational Intelligence in Healthcare-7

The Perfect Fit for Autoimmunity

Towards Precision Medicine for Immune-Mediated Disorders: Advances in Using Big Data and Artificial Intelligence to Understand Heterogeneity in Inflammatory Responses

XPOMET®

Global Trends 2040

This book presents state-of-the-art works and systematic reviews in the emerging field of computational intelligence (CI) in electronic health care. The respective chapters present surveys and practical examples of artificial intelligence applications in the areas of Human-Machine Interface (HMI) and affective computing, machine learning, big health data and visualization analytics, computer vision and medical image analysis. The book also addresses new and emerging topics in CI for health care such as the utilization of Social Media (SM) and the introduction of new intelligent paradigms in the security and privacy domains, which are critical for the health sector. The chapters, while of course not exhaustively addressing all the possible aspects of the aforementioned areas, are indicative of the dynamic nature of interdisciplinary research being pursued. Accordingly, the book is intended not only for researchers in the respective fields, but also for medical and administrative personnel working in the health sector, as well as managers and stakeholders responsible for making strategic decisions and defining public health policies.

Artificial Intelligence presents a practical guide to AI, including agents, machine learning and problem-solving simple and complex domains.

In a highly competitive market, digital transformation with internet of things, artificial intelligence, and other innovative technological trends are elements of differentiations and are important milestones in business development and consumer interaction, particularly in services. As a result, there are several new business models anchored in these digital and technological environments and new experiences provided to services consumers and firms that need to be examined. Impact of Digital Transformation on the Development of New Business Models and Consumer Experience provides relevant theoretical and empirical research findings and innovative and multifaceted perspectives on how digital transformation and other innovative technologies can drive new business models and create valued experiences for consumers and firms. Covering topics such as business models, consumer behavior, and gamification, this publication is ideal for industry professionals, managers, business owners, practitioners, researchers, professors, academicians, and students.

Motivated by the explosion of molecular data on humans-particularly data associated with individual patients-and the sense that there are large, as-yet-untapped opportunities to use this data to improve health outcomes, Toward Precision Medicine explores the feasibility and need for "a new taxonomy of human disease based on molecular biology" and develops a potential framework for creating one. The book says that a new data network that integrates emerging research on the molecular makeup of diseases with clinical data on individual patients could drive the development of a more accurate classification of diseases and ultimately enhance diagnosis and treatment. The "new taxonomy" that emerges would define diseases by their underlying molecular causes and other factors in addition to their traditional physical signs and symptoms. The book adds that the new data network could also improve biomedical research by enabling scientists to access patients' information during treatment while still protecting their rights. This would allow the marriage of molecular research and clinical data at the point of care, as opposed to research information continuing to reside primarily in academia. Toward Precision Medicine notes that moving toward individualized medicine requires that researchers and health care providers have access to very large sets of health- and disease-related data linked to individual patients. These data are also critical for developing the information commons, the knowledge network of disease, and ultimately the new taxonomy.

How New Breakthroughs in Precision Medicine Can Transform the Quality of Your Life & Those You Love

Companion Diagnostics (CDx) in Precision Medicine

The Silent Cry: How to Turn Translational Medicine Towards Patients and Unmet Medical Needs

How Artificial Intelligence Can Make Healthcare Human Again

Career Paths in Telemental Health

Personalised Cancer Medicine

This publication covers global megatrends for the next 20 years and how they will affect the United States. This is the fifth installment in the National Intelligence Council's series aimed at providing a framework for thinking about possible futures and their implications. The report is intended to stimulate strategic thinking about the rapid and vast geopolitical changes characterizing the world today and possible global trajectories during the next 15-20 years by identifying critical trends and potential discontinuities. The authors distinguish between megatrends, those factors that will likely occur under any scenario, and game-changers, critical variables whose trajectories are far less certain. NIC 2012-001. Several innovations are included in Global Trends 2030, including: a review of the four previous Global Trends reports, input from academic and other experts around the world, coverage of disruptive technologies, and a chapter on the potential trajectories for the US role in the international system and the possible impact on future international relations. Table of Contents: Introduction 1 Megatrends 6 Individual Empowerment 8 Poverty Reduction 8 An Expanding Global Middle Class 8 Education and the Gender Gap 10 Role of Communications Technologies 11 Improving Health 11 A MORE CONFLICTED IDEOLOGICAL LANDSCAPE 12 Diffusion of Power 15 THE RISE AND FALL OF COUNTRIES: NOT THE SAME OLD STORY 17 THE LIMITS OF HARD POWER IN THE WORLD OF 2030 18 Demographic Patterns 20 Widespread Aging 20 Shrinking Number of Youthful Countries 22 A New Age of Migration 23 The World as Urban 26 Growing Food, Water, and Energy Nexus 30 Food, Water, and Climate 30 A Brighter Energy Outlook 34 Game-Changers 38 The Crisis-Prone Global Economy 40 The Plight of the West 40 Crunch Time Too for the Emerging Powers 43 A Multipolar Global Economy: Inherently More Fragile? 46 The Governance Gap 48 Governance Starts at Home: Risks and Opportunities 48 INCREASED FOCUS ON EQUALITY AND OPENNESS 53 NEW GOVERNMENTAL FORMS 54 A New Regional Order? 55 Global Multilateral Cooperation 55 The Potential for Increased Conflict 59 INTRASTATE CONFLICT: CONTINUED DECLINE 59 Interstate Conflict: Chances Rising 61 Wider Scope of Regional Instability 70 The Middle East: At a Tipping Point 70 South Asia: Shocks on the Horizon 75 East Asia: Multiple Strategic Futures 76 Europe: Transforming Itself 78 Sub-Saharan Africa: Turning a Corner by 2030? 79 Latin America: More Prosperous but Inherently Fragile 81 The Impact of New Technologies 83 Information Technologies 83 AUTOMATION AND MANUFACTURING TECHNOLOGIES 87 Resource Technologies 90 Health Technologies 95 The Role of the United States 98 Steady US Role 98 Multiple Potential Scenarios for the United States' Global Role 101 Alternative Worlds 107 Stalled Engines 110 FUSION 116 Gini-out-of-the-Bottle 122 Nonstate World 128 Acknowledgements 134 GT2030 Blog References 137 Audience: Appropriate for anyone, from businesses to banks, government agencies to start-ups, the technology sector to the teaching sector, and more. This publication helps anticipate where the world will be: socially, politically, technologically, and culturally over the next few decades. Keywords: Global Trends 2030, Global Trends series, National Intelligence Council, global trajectories, global megatrends, geopolitics, geopolitical changes

This book presents the most recent and advanced techniques for creating autonomous AI systems capable of planning and acting effectively.

This book is a comprehensive survey of our scientific knowledge about human intelligence, written by a researcher who has spent more than 30 years studying the field, receiving a Lifetime Contribution award from the International Society for Intelligence. Human Intelligence takes a non-ideological view of a topic in which, too often, writings are dominated by a single theory or social viewpoint. The book discusses the conceptual status of intelligence as a collection of cognitive skills that include, but also go beyond, those skills evaluated by conventional tests; intelligence tests and their analysis; contemporary theories of intelligence; biological and social causes of intelligence; the importance of intelligence in social, industrial, and educational spheres; the role of intelligence in determining success in life, both inside and outside educational settings; and the nature and causes of variations in intelligence across age, gender, and racial and ethnic groups.

Topic Editor Dr. MacLeod is employed by Janssen. All other Topic Editors declare no competing interests with regards to the Research Topic subject.

Stories of Personal Triumph from the Frontiers of Brain Science

The Big Unlock

The Brain's Secret to Seeing Past Illusion, Misperception, and Self-Deception

Human Intelligence

17th Conference on Artificial Intelligence in Medicine, AIME 2019, Poznan, Poland, June 26–29, 2019, Proceedings

Pharmaceutical Market Access in Developed Markets

One of America's top doctors reveals how AI will empower physicians and revolutionize patient care. Medicine has become inhuman, to disastrous effect. The doctor-patient relationship--the heart of medicine--is broken: doctors are too distracted and overwhelmed to truly connect with their patients, and medical errors and misdiagnoses abound. In Deep Medicine, leading physician Eric Topol reveals how artificial intelligence can help. AI has the potential to transform everything doctors do, from notetaking and medical scans to diagnosis and treatment, greatly cutting down the cost of medicine and reducing human mortality. By freeing physicians from the tasks that interfere with human connection, AI will create space for the real healing that takes place between a doctor who can listen and a patient who needs to be heard. Innovative, provocative, and hopeful, Deep Medicine shows us how the awesome power of AI can make medicine better, for all the humans involved.

Precision Medicine and Artificial Intelligence: The Perfect Fit for Autoimmunity covers background on artificial intelligence (AI), its link to precision medicine (PM), and examples of AI in healthcare, especially autoimmunity. The book highlights future perspectives and potential directions as AI has gained significant attention during the past decade. Autoimmune diseases are complex and heterogeneous conditions, but exciting new developments and implementation tactics surrounding automated systems have enabled the generation of large datasets, making autoimmunity an ideal target for AI and precision medicine. More and more diagnostic products utilize AI, which is also starting to be supported by regulatory agencies such as the Food and Drug Administration (FDA). Knowledge generation by leveraging large datasets including demographic, environmental, clinical and biomarker data has the potential to not only impact the diagnosis of patients, but also disease prediction, prognosis and treatment options. Allows the readers to gain an overview on precision medicine for autoimmune diseases leveraging AI solutions. Provides background, milestone and examples of precision medicine. Outlines the paradigm shift towards precision medicine driven by value-based systems. Discusses future applications of precision medicine research using AI. Other aspects covered in the book include regulatory insights, data analytics and visualization, types of biomarkers as well as the role of the patient in precision medicine.

INSTANT #1 NEW YORK TIMES BESTSELLER Transform your life or the life of someone you love with Life Force—the newest breakthroughs in health technology to help maximize your energy and strength, prevent disease, and extend your health span—from Tony Robbins, author of the #1 New York Times bestseller Money: Master the Game. What if there were scientific solutions that could wipe out your deepest fears of falling ill, receiving a life-threatening diagnosis, or feeling the effects of aging? What if you had access to the same cutting-edge tools and technology used by peak performers and the world's greatest athletes? In a world full of fear and uncertainty about our health, it can be difficult to know where to turn for actionable advice you can trust. Today, leading scientists and doctors in the field of regenerative medicine are developing diagnostic tools and safe and effective therapies that can free you from fear. In this book, Tony Robbins, the world's #1 life and business strategist who has coached more than fifty million people, brings you more than 100 of the world's top medical minds and the latest research, inspiring comeback stories, and amazing advancements in precision medicine that you can apply today to help extend the length and quality of your life. This book is the result of Robbins going on his own life-changing journey. After being told that his health challenges were irreversible, he experienced firsthand how new regenerative technology not only helped him heal but made him stronger than ever before. Life Force will show you how you can wake up every day with increased energy, a more bulletproof immune system, and the know-how to help turn back your biological clock. This is a book for everyone, from peak performance athletes, to the average person who wants to increase their energy and strength, to those looking for healing. Life Force provides answers that can transform and even save your life, or that of someone you love.

The first report in a new flagship series, WIPO Technology Trends, aims to shed light on the trends in innovation in artificial intelligence since the field first developed in the 1950s.

Artificial Intelligence in Medicine

The Fourth Industrial Revolution

360° Next Generation Healthcare

Artificial Intelligence and Human Cognition in Clinical Medicine and Healthcare

Handbook of Research on Machine Learning Applications and Trends: Algorithms, Methods, and Techniques

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 using 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.

Artificial Intelligence (AI) in Healthcare is more than a comprehensive introduction to artificial intelligence as a tool in the generation and analysis of healthcare data. The book is split into two sections where the first section describes the current healthcare challenges and the rise of AI in this arena. The ten following chapters are written by specialists in each area, covering the whole healthcare ecosystem. First, the AI applications in drug design and drug development are presented followed by its applications in the field of cancer diagnostics, treatment and medical imaging. Subsequently, the application of AI in medical devices and surgery are covered as well as remote patient monitoring. Finally, the book dives into the topics of security, privacy, information sharing, health insurances and legal aspects of AI in healthcare. Highlights different data techniques in healthcare data analysis, including machine learning and data mining. Illustrates different applications and challenges across the design, implementation and management of intelligent systems and healthcare data networks. Includes applications and case studies across all areas of AI in healthcare data.

The artificial intelligence (AI) landscape has evolved significantly from 1950 when Alan Turing first posed the question of whether machines can think. Today, AI is transforming societies and economies. It promises to generate productivity gains, improve well-being and help address global challenges, such as climate change, resource scarcity and health crises.

"The ongoing COVID-19 pandemic marks the most significant, singular global disruption since World War II, with health, economic, political, and security implications that will ripple for years to come." -Global Trends 2040 (2021) Global Trends 2040-A More Contested World (2021), released by the US National Intelligence Council, is the latest report in its series of reports starting in 1997 about megatrends and the world's future. This report, strongly influenced by the COVID-19 pandemic, paints a bleak picture of the future and describes a contested, fragmented and turbulent world. It specifically discusses the four main trends that will shape tomorrow's world: - Demographics-by 2040, 1.4 billion people will be added mostly in Africa and South Asia. - Economics-increased government debt and concentrated economic power will escalate problems for the poor and middleclass. - Climate-a hotter world will increase water, food, and health insecurity. - Technology-the emergence of new technologies could both solve and cause problems for human life. Students of trends, policymakers, entrepreneurs, academics, journalists and anyone eager for a glimpse into the next decades, will find this report, with colored graphs, essential reading.

The Brain That Changes Itself

Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease

The Power of Passion and Perseverance

Unlocking Precision Medicine

Artificial Intelligence for COVID-19

A User Friendly Guide for IT Professionals, Healthcare Providers, Researchers, and Clinicians

As modern healthcare becomes increasingly personalized and data-driven, traditional healthcare is being transformed into a dynamic, multi-layered and highly connected global ecosystem. New players, such as medical entrepreneurs and tech giants like Apple, Amazon, Google and IBM Watson are continuing to expose and challenge the current healthcare market by providing innovative digital products and know-how. Digital health offers both—a suite of new capabilities and new approaches that unlock health(care) from constraints of time, place, distance and knowledge. It opens up entirely new ways to address and understand people and their health needs. This is how XPOMET® was born, and has been continuously growing as a platform, that is dedicated to innovative trends in medicine and care and at the same time creates a community that promotes cultural change in the healthcare industry. In 2019, the XPOMET® Medicinale has become an international event to showcase best practice, highlight trends in global healthcare and forecast future developments in health and tech. The book offers a broad collection of the extensive knowledge of contributors to the XPOMET® Medicinale 2019. International experts share their novel ideas, challenges and achievements in the global healthcare market. The reader is invited to join in the XPOMET® community's vision and to be inspired by the latest discoveries and technological know-how in healthcare.

The Secret Behind Our Perceptions Finally Revealed! Why do we gravitate to products endorsed by celebrities? Why does time seem to go by faster as we get older? Why are some athletes perpetual winners and others losers? Exploring the brain's ability to interpret and make sense of the world, Dr. Brian Boxer Wachler describes how your perception can be reality or fantasy and how to separate the two, which is the basis of improving your Perceptual Intelligence (PI). With concrete examples and case studies, Dr. Brian (as he's known to his patients) explains why our senses do not always match reality and how we can influence the world around us through perceptions, inward and outward. By fine-tuning your PI, you can better understand what's really going on and make more insightful decisions in your life. "This book investigates machine learning (ML), one of the most fruitful fields of current research, both in the proposal of new techniques and theoretic algorithms and in their application to real-life problems"--Provided by publisher.

Harnessing Data and Growing Digital Health Businesses in a Value-Based Care Era

Bioscience Regulatory Law

Precision Medicine and Artificial Intelligence

Foundations of Artificial Intelligence in Healthcare and Bioscience

Augmenting Neurological Disorder Prediction and Rehabilitation Using Artificial Intelligence