Unlocking Precision Medicine Encounter Intelligence

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?

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.

This volume contains the refereed and invited papers which were presented at Expert Systems 92, the twelfth annual conference of the British Computer Society's Specialist Group on Expert Systems, held in Cambridge in December 1992. Together with its predecessors this is essential reading for those who wish to keep up-to-date with developments and opportunities in this important field.

"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. 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

It has, improbably, been called uncommonly lucid, even riveting by The New York Times, and it was a finalist for the 2004 National Book Awards nonfiction honor. It is a literally chilling read, especially in its minute-by-minute description of the events of the morning of 9/11 inside the Twin Towers.It is The 9/11 Commission Report, which was, before its publication, perhaps one of the most anticipated government reports of all time, and has been since an unlikely bestseller. The official statement by the National Commission on Terrorist Attacks Upon the United States-which was instituted in late 2002 and chaired by former New Jersey Governor Thomas Kean-it details what went wrong on that day (such as intelligence failures), what went right (the heroic response of emergency services and self-organizing civilians), and how to avert similar future attacks.Highlighting evidence from the day, from airport surveillance footage of the terrorists to phone calls from the doomed flights, and offering details that have otherwise gone unheard, this is an astonishing firsthand document of contemporary history. While controversial in parts-it has been criticized for failing to include testimony from key

individuals, and it completely omits any mention of the mysterious collapse of WTC 7-it is nevertheless an essential record of one of the most transformational events of modern times.

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.

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

We can all point to random examples of innovation inside of healthcare information technology, but few repeatable processes exist that make innovation more routine than happenstance. How do you create and sustain a culture of innovation? What are the best practices you can refine and embed as part of your organization's DNA? What are the potential outcomes for robust healthcare transformation when we get this innovation mystery solved? Loaded with numerous case studies and stories of successful innovation projects, this book helps the reader understand how to leverage innovation to help fulfill the promise of healthcare information technology in enabling superior business and clinical outcomes.

Inside view of how and why militaries/intelligence agencies plan for environmental disasters, for practitioners, policymakers and scholars.

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 for whom it is indicated as per its 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 support the management of 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, any Market Access strategy needs to 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, industry personnel, government workers, and decision makers understand the environment in developed markets. 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 market of each new medicine. Even 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 delivering cost-effective 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.

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.

Every patient is unique, and the evolving field of precision medicine aims to ensure the delivery of the right treatment to the right patient at the right time. In an era of rapid advances in biomedicine and enhanced understanding of the genetic basis of disease, health care providers increasingly have access to advanced technologies that may identify molecular variations specific to an individual patient, which subsequently can be targeted for treatment. Known as biomarker tests for molecularly targeted therapies, these complex tests have the potential to enable the selection of the most beneficial treatment (and also to identify treatments that may be harmful or ineffective) for the molecular underpinnings of an individual patient's disease. Such tests are key to unlocking the promise of precision medicine. Biomarker tests for molecularly targeted therapies represent a crucial area of focus for developing methods that could later be applicable to other areas

of precision medicine. The appropriate regulatory oversight of these tests is required to ensure that they are accurate, reliable, properly validated, and appropriately implemented in clinical practice. Moreover, common evidentiary standards for assessing the beneficial impact of biomarker-guided therapy selection on patient outcomes, as well as the effective collection and sharing of information related to those outcomes, are urgently needed to better inform clinical decision making. Biomarker Tests of Molecularly Targeted Therapies examines opportunities for and challenges to the use of biomarker tests to select optimal therapy and offers recommendations to accelerate progress in this field. This report explores regulatory issues, reimbursement issues, and clinical practice issues related to the clinical development and use of biomarker tests for targeting therapies to patients. Properly validated, appropriately implemented biomarker tests hold the potential to enhance patient care and improve outcomes, and therefore addressing the challenges facing such tests is critical.

When the woman he loved was diagnosed with a metastatic cancer, science writer George Johnson embarked on a journey to learn everything he could about the disease and the people who dedicate their lives to understanding and combating it. What he discovered is a revolution under way—an explosion of

new ideas about what cancer really is and where it comes from. In a provocative and intellectually vibrant exploration, he takes us on an adventure through the history and recent advances of cancer research that will challenge everything you thought you knew about the disease. Deftly excavating and illuminating decades of investigation and analysis, he reveals what we know and don't know about cancer, showing why a cure remains such a slippery concept. We follow him as he combs through the realms of epidemiology, clinical trials, laboratory experiments, and scientific hypotheses—rooted in every discipline from evolutionary biology to game theory and physics. Cogently extracting fact from a towering canon of myth and hype, he describes tumors that evolve like alien creatures inside the body, paleo-oncologists who uncover petrified tumors clinging to the skeletons of dinosaurs and ancient human ancestors, and the surprising reversals in science's comprehension of the causes of cancer, with the foods we eat and environmental toxins playing a lesser role. Perhaps most fascinating of all is how cancer borrows natural processes involved in the healing of a wound or the unfolding of a human embryo and turns them, jujitsu-like, against the body. Throughout his pursuit, Johnson clarifies the human experience of cancer with elegiac grace, bearing witness to the punishing gauntlet of consultations, surgeries, targeted

therapies, and other treatments. He finds compassion, solace, and community among a vast network of patients and professionals committed to the fight and wrestles to comprehend the cruel randomness cancer metes out in his own family. For anyone whose life has been affected by cancer and has found themselves asking why?, this book provides a new understanding. In good company with the works of Atul Gawande, Siddhartha Mukherjee, and Abraham Verghese, The Cancer Chronicles is endlessly surprising and as radiant in its prose as it is authoritative in its eye-opening science.

A professor of medicine reveals how technology like wireless internet, individual data, and personal genomics can be used to save lives.

Sentiment analysis is the computational study of people's opinions, sentiments, emotions, moods, and attitudes. This fascinating problem offers numerous research challenges, but promises insight useful to anyone interested in opinion analysis and social media analysis. This comprehensive introduction to the topic takes a natural-language-processing point of view to help readers understand the underlying structure of the problem and the language constructs commonly used to express opinions, sentiments, and emotions. The book covers core areas of sentiment analysis and also includes related topics such as debate analysis, intention mining, and fake-opinion detection. It will be a valuable resource for researchers and practitioners in natural language processing, computer science, management sciences, and the social sciences. In addition to traditional

computational methods, this second edition includes recent deep learning methods to analyze and summarize sentiments and opinions, and also new material on emotion and mood analysis techniques, emotion-enhanced dialogues, and multimodal emotion analysis.

This electronic version has been made available under a Creative Commons (BY-NC-ND) open access license. What does it mean to personalise cancer medicine? Drawing on an ethnographic study with cancer patients, carers and practitioners in the UK, this book traces their efforts to access and interpret novel genomic tests, information and treatments as they craft personal and collective futures. Exploring multiple experiences of new diagnostic tests, research programmes and trials, advocacy and experimental therapies, the authors chart the different kinds of care and work involved in efforts to personalise cancer medicine, as well as the ways in which benefits and opportunities are unevenly realised and distributed. Comparing these experiences with policy and professional accounts of the ‘big’ future of personalised healthcare, the authors show how hope and care are multi-faceted, contingent and, at times, frustrated in the everyday complexities of living and working with cancer.

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.

Today we are on the brink of a much-needed transformative moment for health care. The U.S. health care system is designed to be reactive instead of preventive. The result is diagnoses that are too late and outcomes that are far worse than our level of spending should deliver. In recent years, U.S. life expectancy has been declining. Fundamental to realizing better health, and a more effective health care system, is advancing the disruptive thinking that has spawned innovation in Silicon Valley and throughout the world. That's exactly what Stanford Medicine has done by proposing a new vision for health and health care. In Discovering Precision Health, Lloyd Minor and Matthew Rees describe a holistic approach that will set health care on the right track: keep people healthy by preventing disease before it starts and personalize the treatment of individuals precisely, based on their specific profile. With descriptions of the pioneering work undertaken at Stanford Medicine, complemented by fascinating case studies of innovations from entities including the Chan Zuckerberg Biohub, GRAIL, and Impossible Foods,

Minor and Rees present a dynamic vision for the future of individual health and health care. You'll see how tools from smartphone technology to genome sequencing to routine blood tests are helping avert illness and promote health. And you'll learn about the promising progress already underway in bringing greater precision to the process of predicting, preventing, and treating a range of conditions, including allergies, mental illness, preterm birth, cancer, stroke, and autism. The book highlights how biomedical advances are dramatically improving our ability to treat and cure complex diseases, while emphasizing the need to devote more attention to social, behavioral, and environmental factors that are often the primary determinants of health. The authors explore thought-provoking topics including: The unlikely role of Google Glass in treating autism How gene editing can advance precision in treating disease What medicine can learn from aviation liHow digital tools can contribute to health and innovation Discovering Precision Health showcases entirely new ways of thinking about health and health care and can help empower us to lead healthier lives.

Following significant advances in deep learning and related areas interest in artificial intelligence (AI) has rapidly grown. In particular, the application of AI in drug discovery provides an opportunity to tackle challenges that previously have been difficult to solve, such as predicting properties, designing molecules and optimising synthetic routes. Artificial Intelligence in Drug Discovery aims to introduce the reader to AI and machine learning tools and techniques, and to outline specific challenges including designing new molecular structures, synthesis planning and simulation. Providing a wealth of information from leading experts in the field this book is ideal for students, postgraduates and established researchers in both industry and academia.

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.

How can a smartwatch help patients with diabetes manage their disease? Why can't patients find out prices for surgeries and other procedures before they happen? How can researchers speed up the decade-long process of drug development? How will "Precision Medicine" impact patient care outside of cancer? What can doctors, hospitals, and health systems do to ensure they are maximizing high-value care? How can healthcare entrepreneurs find success in this data-driven market? A revolution is transforming the $10 trillion healthcare landscape, promising greater transparency, improved efficiency, and new ways of delivering care. This new landscape presents tremendous opportunity for those who are ready to embrace the data-driven reality. Having the right data and knowing how to use it will be the key to success in the healthcare market in the future. We are already starting to see the impacts in drug development, precision medicine, and how patients with rare diseases are diagnosed and treated. Startups are launched every week to fill an unmet need and address the current problems in the healthcare system. Digital devices and artificial intelligence are helping doctors do their jobs faster and with more accuracy. MoneyBall Medicine: Thriving in the New Data-Driven Healthcare Market, which includes interviews with dozens of healthcare leaders, describes the business challenges and opportunities arising for those working in one of the most vibrant sectors of the world's economy. Doctors, hospital administrators, health information technology

directors, and entrepreneurs need to adapt to the changes effecting healthcare today in order to succeed in the new, cost-conscious and value-based environment of the future. The authors map out many of the changes taking place, describe how they are impacting everyone from patients to researchers to insurers, and outline some predictions for the healthcare industry in the years to come.

Discover the history of Haden's Syndrome, the virus that created the world of John Scalzi's inventive near-future thrillers Lock In and Head On, in the prequel novella Unlocked. Not long from now, a virus will sweep the globe. Most will suffer no worse than flu-like symptoms, but an unlucky one percent will be changed forever. Hundreds of millions become "locked in", awake, aware, but completely unable to control their bodies. This is the story of the doctors, scientists, engineers, politicians, and heroes who remade the world. It is the story of the chaotic outbreak, the fight for a cure, the changes that followed. It is an oral history, straight from the mouths of those who survived the most dynamic period in human history. At the Publisher's request, this title is being sold without Digital Rights Management Software (DRM) applied.

Milstead's Health Policy & Politics: A Nurse's Guide, Seventh Edition is focused on policy-making and the impact it has on nursing and healthcare.

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.

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 spend months or years developing 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. This book provides a framework for 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. Whether youre a health care 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, youll learn how to grow revenue and profits 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.

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.

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.

Does your family make you smarter? James R. Flynn presents an exciting new method for estimating the effects of family on a range of cognitive abilities. Rather than using twin and adoption studies, he analyses IQ tables that have been hidden in manuals over the last 65 years, and shows that family environment can confer a significant advantage or disadvantage to your level of intelligence. Wading into the nature vs. nurture debate, Flynn banishes the pessimistic notion that by the age of seventeen, people's cognitive abilities are solely determined by their genes. He argues that intelligence is also influenced by human autonomy - genetics and family notwithstanding, we all have the capacity to choose to enhance our cognitive performance. He concludes by reconciling this new understanding of individual differences with his earlier research on intergenerational trends (the 'Flynn effect') culminating in a general theory of intelligence.

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.

Practitioners are increasingly adopting a personalised medicine approach to individually tailored patient care, especially disease diagnosis and treatment with the use of biomarkers. However, development and implementation of such approaches to chronic disease prevention need further investigation and concerted efforts for proper use in healthcare systems. This book provides high-quality, multidisciplinary knowledge from research in personalised medicine, specifically personalised prevention of chronic disease. It addresses different perspectives of prevention in the field, and is the outcome of a four-year work of the Personalized prevention of Chronic Disease (PRECeDI) Consortium, a

multi-disciplinary and multi-professional team of experts. The Consortium jointly agreed to document and address the five aspects or domains of personalised medicine and prevention as individual chapters: Identification of biomarkers for the prevention of chronic disease Evaluation of predictive genomic applications Ethico-legal and policy issues surrounding personalised medicine Roles and responsibilities of stakeholders in informing healthy individuals on their genome: a sociotechnical analysis Identification of organisational models for the provision of predictive genomic applications The book focuses on the Consortium's recommendations that are derived from each of these domains based on up-to-date evidence and research that the authors write, follow, and systematically organise and report. Personalisation of health care is, eventually, a driver of innovation in research and healthcare systems. With this SpringerBrief on Personalised Health Care: Fostering Precision Medicine Advancements for Gaining Population Health Impact, the Consortium provides further evidence of the clinical validity and utility of personalised medicine with special emphasis on the prevention of chronic diseases. The book is a useful resource for policy makers, industry and healthcare professionals, scientists, technology-sector professionals, investors, citizens, and private companies that need proper advice to realise the potential of personalised 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.

“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.

Reveals the hidden environmental consequences of what societies make and buy, and how that knowledge can drive the changes necessary to save the planet.

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 Build a solid foundation in surgical AI with this engaging, comprehensive guide for AI novices Machine learning, neural networks, and computer vision in surgical education, practice, and research will soon be de rigueur. Written for surgeons without a background in math or computer science, Artificial Intelligence in Surgery provides everything you need to evaluate new technologies and make the right decisions about bringing AI into your practice. Comprehensive and easy to understand, this first-of-its-kind resource illustrates the use of AI in surgery through real-life examples. It covers the issues most relevant to your practice, including: Neural Networks and Deep Learning Natural Language Processing Computer Vision Surgical Education and Simulation Preoperative Risk Stratification Intraoperative Video Analysis OR Black Box and Tracking of Intraoperative Events Artificial Intelligence and Robotic Surgery Natural Language Processing for Clinical Documentation Leveraging Artificial Intelligence in the EMR Ethical Implications of Artificial Intelligence in Surgery Artificial Intelligence and Health Policy Assessing Strengths and Weaknesses of Artificial Intelligence Research Finally, the appendix includes a detailed glossary of terms and important learning resources and techniques?all of which helps you interpret claims made by studies or companies using AI.

The Pacific Symposium on Biocomputing (PSB) 2021 is an international, multidisciplinary conference for the presentation and discussion of current research in the theory and application of computational methods in problems of biological significance. Presentations are rigorously peer reviewed and are published in an archival proceedings volume. PSB 2021 will be held on a virtual platform at psb.stanford.edu/ on January 5-7, 2021. Tutorials and workshops will be offered prior to the start of the conference.PSB 2021 will bring together top researchers from the US, the Asian Pacific nations, and around the world to exchange research results and address open issues in all aspects of computational biology. It is a forum for the presentation of work in databases, algorithms, interfaces, visualization, modeling, and other computational methods, as applied to biological problems, with emphasis on applications in data-rich areas of molecular biology.The PSB has been designed to be responsive to the need for critical mass in sub-disciplines within biocomputing. For that reason, it is the only meeting whose sessions are defined dynamically each year in response to specific proposals. PSB sessions are organized by leaders of research in biocomputing's 'hot topics.' In this way, the meeting provides an early forum for serious examination of emerging methods and approaches in this rapidly changing field.