

ai and wearable technology in healthcare

AI and Wearable Technology in Healthcare: A Revolutionary Partnership

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Introduction:

The convergence of artificial intelligence (AI) and wearable technology is rapidly transforming the landscape of healthcare. AI and wearable technology in healthcare offer a powerful combination, enabling continuous and personalized health monitoring, early disease detection, and improved treatment outcomes. This article delves into the multifaceted applications of this dynamic duo, exploring its benefits, challenges, and future potential while addressing key ethical considerations.

H1: The Power of Wearable Sensors in Data Acquisition

Wearable technology, encompassing smartwatches, fitness trackers, and biosensors, provides a wealth of physiological data, including heart rate, sleep patterns, activity levels, skin temperature, and even blood glucose levels. This continuous data stream, previously unattainable without constant clinical supervision, forms the bedrock of AI and wearable technology in healthcare. The miniaturization and affordability of these devices have broadened access to continuous health monitoring, empowering both patients

and clinicians.

H2: AI Algorithms: Unlocking the Power of Wearable Data

Raw data from wearables, however, is largely meaningless without sophisticated analysis. This is where AI steps in. Machine learning algorithms, particularly deep learning models, are capable of identifying patterns and anomalies within the vast datasets generated by wearable sensors. These algorithms can detect subtle changes indicative of impending health issues, providing early warnings that can significantly improve treatment outcomes. AI and wearable technology in healthcare work synergistically to not only detect problems but also to personalize treatment plans.

H3: Applications of AI and Wearable Technology in Healthcare

The applications of AI and wearable technology in healthcare are diverse and expanding rapidly:

Chronic Disease Management: AI algorithms analyze data from wearables to monitor conditions like diabetes, heart failure, and hypertension, enabling proactive interventions and preventing hospital readmissions. For example, AI can predict hypoglycemic events in diabetic patients based on wearable sensor data, allowing timely intervention and preventing dangerous complications.

Early Disease Detection: AI can identify subtle changes in physiological data that might indicate the onset of diseases like Parkinson's, Alzheimer's, or even certain types of cancer. Early detection dramatically improves treatment efficacy and patient prognosis. The ability of AI and wearable technology in healthcare to contribute to earlier diagnoses is a significant breakthrough.

Mental Health Monitoring: Wearables can track sleep patterns, activity levels, and even heart rate variability to identify potential indicators of depression, anxiety, and other mental health conditions. AI algorithms can then analyze this data to provide personalized insights and support.

Remote Patient Monitoring (RPM): AI and wearable technology in healthcare empower RPM programs, allowing clinicians to monitor patients remotely and provide timely interventions. This reduces the need for frequent hospital visits, improving patient convenience and reducing healthcare costs.

Personalized Medicine: AI can leverage wearable data to create personalized treatment plans tailored to individual patients' unique needs and characteristics. This approach optimizes treatment outcomes and minimizes adverse effects.

H4: Challenges and Ethical Considerations

Despite the immense potential of AI and wearable technology in healthcare, several challenges remain:

Data Privacy and Security: The collection and storage of sensitive health data raise significant privacy and security concerns. Robust security measures and clear data governance frameworks are essential.

Data Accuracy and Reliability: The accuracy and reliability of wearable sensor data can vary depending on factors like device quality, user adherence, and environmental conditions. AI algorithms must be robust enough to handle noisy or incomplete data.

Algorithmic Bias: AI algorithms can inherit and amplify biases present in the training data, leading to disparities in healthcare access and quality. Addressing algorithmic bias is crucial for equitable healthcare delivery.

Regulatory Approval and Standardization: Clear regulatory frameworks and standardization of data formats are needed to ensure the safe and effective deployment of AI and wearable technology in healthcare.

User Acceptance and Engagement: The success of AI and wearable technology in healthcare depends on user acceptance and engagement. Designing user-friendly devices and interfaces is crucial.

H5: The Future of AI and Wearable Technology in Healthcare

The future of AI and wearable technology in healthcare is bright. Advancements in sensor technology, AI algorithms, and data analytics will lead to even more sophisticated and personalized healthcare solutions. We can expect to see:

Increased integration of wearable data with Electronic Health Records (EHRs): Seamless integration will enable a more holistic view of patient health.

Development of more sophisticated AI algorithms capable of handling complex medical data: This will improve the accuracy and reliability of diagnostic tools and treatment recommendations.

Wider adoption of AI-powered telehealth platforms: This will improve access to healthcare, especially in underserved areas.

Increased use of AI in drug discovery and development: This will accelerate the development of new and more effective treatments.

Conclusion:

AI and wearable technology in healthcare represent a paradigm shift in how we approach healthcare delivery. By enabling continuous monitoring, early disease detection, personalized treatment, and remote patient management, this powerful combination holds immense potential to improve patient

outcomes, reduce healthcare costs, and enhance the overall quality of life. However, careful consideration of ethical implications and the development of robust regulatory frameworks are essential to ensure responsible and equitable deployment of these technologies.

FAQs:

1. How accurate are wearable health trackers? Accuracy varies depending on the device and the metric being measured. While generally reliable for tracking activity and sleep, accuracy can be less consistent for physiological data like heart rate or blood oxygen levels.
1. Are my health data collected by wearables secure? Data security is a major concern. Choose devices from reputable manufacturers with strong security protocols and review their privacy policies carefully.
1. Can AI-powered wearables diagnose diseases? AI can identify potential indicators of disease, but it cannot replace a medical professional's diagnosis. Wearable data should be interpreted in conjunction with clinical assessments.
1. How can AI improve chronic disease management? AI can analyze wearable data to predict potential complications, allowing for timely intervention and preventing hospitalizations.
1. What are the ethical considerations of using AI in healthcare? Concerns include data privacy, algorithmic bias, and the potential displacement of human healthcare professionals.
1. How can I choose the right wearable device for my needs? Consider factors like accuracy, features, battery life, comfort, and compatibility with your smartphone and other devices.

1. What is the cost of AI-powered wearable health technology? Costs vary greatly depending on the features and brand. Some devices are relatively inexpensive, while others can be quite costly.
1. What is the role of the healthcare provider in AI-powered wearable technology? Healthcare providers play a crucial role in interpreting data from wearables, making diagnoses, and developing personalized treatment plans.
1. What is the future of AI and wearable technology in healthcare? The future looks promising, with advancements in AI, sensor technology, and data analytics driving innovation and improving patient care.

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ai and wearable technology in healthcare: Wearable Technology in Medicine and Health Care Raymond K. Y. Tong, 2018-07-26 Wearable Technology in Medicine and Health Care provides readers with the most current research and information on the clinical and biomedical applications

of wearable technology. Wearable devices provide applicability and convenience beyond many other means of technical interface and can include varying applications, such as personal entertainment, social communications and personalized health and fitness. The book covers the rapidly expanding development of wearable systems, thus enabling clinical and medical applications, such as disease management and rehabilitation. Final chapters discuss the challenges inherent to these rapidly evolving technologies. - Provides state-of-the-art coverage of the latest advances in wearable technology and devices in healthcare and medicine - Presents the main applications and challenges in the biomedical implementation of wearable devices - Includes examples of wearable sensor technology used for health monitoring, such as the use of wearables for continuous monitoring of human vital signs, e.g. heart rate, respiratory rate, energy expenditure, blood pressure and blood glucose, etc. - Covers examples of wearables for early diagnosis of diseases, prevention of chronic conditions, improved clinical management of neurodegenerative conditions, and prompt response to emergency situations

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and innovative mechanization and its disruptions.

ai and wearable technology in healthcare: Transforming Healthcare with Big Data and AI Alex Liu, Anna Farzindar, Mingbo Gong, 2020-04-01 Healthcare and technology are at a convergence point where significant changes are poised to take place. The vast and complex requirements of medical record keeping, coupled with stringent patient privacy laws, create an incredibly unwieldy maze of health data needs. While the past decade has seen giant leaps in AI, machine learning, wearable technologies, and data mining capacities that have enabled quantities of data to be accumulated, processed, and shared around the globe. Transforming Healthcare with Big Data and AI examines the crossroads of these two fields and looks to the future of leveraging advanced technologies and developing data ecosystems to the healthcare field. This book is the product of the Transforming Healthcare with Data conference, held at the University of Southern California. Many speakers and digital healthcare industry leaders contributed multidisciplinary expertise to chapters in this work. Authors' backgrounds range from data scientists, healthcare experts, university professors, and digital healthcare entrepreneurs. If you have an understanding of data technologies and are interested in the future of Big Data and A.I. in healthcare, this book will provide a wealth of insights into the new landscape of healthcare.

ai and wearable technology in healthcare: Data Analytics and Applications of the Wearable Sensors in Healthcare Shabbir Syed-Abdul, Luis Fernandez Luque, Pei-Yun Sabrina Hsueh, Juan M. García-Gomez, Begoña Garcia-Zapirain, 2020-06-17 This book provides a collection of comprehensive research articles on data analytics and applications of wearable devices in healthcare. This Special Issue presents 28 research studies from 137 authors representing 37 institutions from 19 countries. To facilitate the understanding of the research articles, we have organized the book to show various aspects covered in this field, such as eHealth, technology-integrated research, prediction models, rehabilitation studies, prototype systems, community health studies, ergonomics design systems, technology acceptance model evaluation studies, telemonitoring systems, warning systems, application of sensors in sports studies, clinical systems, feasibility studies, geographical location based systems, tracking systems, observational studies, risk assessment studies, human activity recognition systems, impact measurement systems, and a systematic review. We would like to take this opportunity to invite high quality research articles for our next Special Issue entitled "Digital Health and Smart Sensors for Better Management of Cancer and Chronic Diseases" as a part of Sensors journal.

ai and wearable technology in healthcare: Smart Systems for Industrial Applications C. Venkatesh, N. Rengarajan, P. Ponmurugan, S. Balamurugan, 2022-01-07 SMART SYSTEMS FOR INDUSTRIAL APPLICATIONS The prime objective of this book is to provide an insight into the role and advancements of artificial intelligence in electrical systems and future challenges. The book covers a broad range of topics about AI from a multidisciplinary point of view, starting with its history and continuing on to theories about artificial vs. human intelligence, concepts, and regulations concerning AI, human-machine distribution of power and control, delegation of decisions, the social and economic impact of AI, etc. The prominent role that AI plays in society by connecting people through technologies is highlighted in this book. It also covers key aspects of various AI applications in electrical systems in order to enable growth in electrical engineering. The impact that AI has on social and economic factors is also examined from various perspectives. Moreover, many intriguing aspects of AI techniques in different domains are covered such as e-learning, healthcare, smart grid, virtual assistance, etc. Audience The book will be of interest to researchers and postgraduate students in artificial intelligence, electrical and electronic engineering, as well as those engineers working in the application areas such as healthcare, energy systems, education, and others.

ai and wearable technology in healthcare: Artificial Intelligence in Behavioral and Mental Health Care David D. Luxton, 2015-09-10 Artificial Intelligence in Behavioral and Mental Health Care summarizes recent advances in artificial intelligence as it applies to mental health clinical practice. Each chapter provides a technical description of the advance, review of application

in clinical practice, and empirical data on clinical efficacy. In addition, each chapter includes a discussion of practical issues in clinical settings, ethical considerations, and limitations of use. The book encompasses AI based advances in decision-making, in assessment and treatment, in providing education to clients, robot assisted task completion, and the use of AI for research and data gathering. This book will be of use to mental health practitioners interested in learning about, or incorporating AI advances into their practice and for researchers interested in a comprehensive review of these advances in one source. - Summarizes AI advances for use in mental health practice - Includes advances in AI based decision-making and consultation - Describes AI applications for assessment and treatment - Details AI advances in robots for clinical settings - Provides empirical data on clinical efficacy - Explores practical issues of use in clinical settings

ai and wearable technology in healthcare: *AI-First Healthcare* Kerrie L. Holley, Siupo Becker M.D., 2021-04-19 AI is poised to transform every aspect of healthcare, including the way we manage personal health, from customer experience and clinical care to healthcare cost reductions. This practical book is one of the first to describe present and future use cases where AI can help solve pernicious healthcare problems. Kerrie Holley and Siupo Becker provide guidance to help informatics and healthcare leadership create AI strategy and implementation plans for healthcare. With this book, business stakeholders and practitioners will be able to build knowledge, a roadmap, and the confidence to support AI in their organizations—without getting into the weeds of algorithms or open source frameworks. Cowritten by an AI technologist and a medical doctor who leverages AI to solve healthcare's most difficult challenges, this book covers: The myths and realities of AI, now and in the future Human-centered AI: what it is and how to make it possible Using various AI technologies to go beyond precision medicine How to deliver patient care using the IoT and ambient computing with AI How AI can help reduce waste in healthcare AI strategy and how to identify high-priority AI application

ai and wearable technology in healthcare: *Evolving Role of AI and IoMT in the Healthcare Market* Fadi Al-Turjman, Manoj Kumar, Thompson Stephan, Akashdeep Bhardwaj, 2022-01-07 This book is a proficient guide to understanding artificial intelligence (IoT) and the Internet of Medical Things (IoMT) in healthcare. The book provides a comprehensive study on the applications of AI and IoT in various medical domains. The book shows how the implementation of innovative solutions in healthcare is beneficial, and IoT, together with AI, are strong drivers of the digital transformation regardless of what field the technologies are applied in. Therefore, this book provides a high level of understanding with the emerging technologies on the Internet of Things, wearable devices, and AI in IoMT, which offers the potential to acquire and process a tremendous amount of data from the physical world.

ai and wearable technology in healthcare: *Artificial Intelligence for the Internet of Health Things* K. Shankar, Eswaran Perumal, Deepak Gupta, 2021-05-10 This book discusses research in Artificial Intelligence for the Internet of Health Things. It investigates and explores the possible applications of machine learning, deep learning, soft computing, and evolutionary computing techniques in design, implementation, and optimization of challenging healthcare solutions. This book features a wide range of topics such as AI techniques, IoT, cloud, wearables, and secured data transmission. Written for a broad audience, this book will be useful for clinicians, health professionals, engineers, technology developers, IT consultants, researchers, and students interested in the AI-based healthcare applications. Provides a deeper understanding of key AI algorithms and their use and implementation within the wider healthcare sector Explores different disease diagnosis models using machine learning, deep learning, healthcare data analysis, including machine learning, and data mining and soft computing algorithms Discusses detailed IoT, wearables, and cloud-based disease diagnosis model for intelligent systems and healthcare Reviews different applications and challenges across the design, implementation, and management of intelligent systems and healthcare data networks Introduces a new applications and case studies across all areas of AI in healthcare data K. Shankar (Member, IEEE) is a Postdoctoral Fellow of the Department of Computer Applications, Alagappa University, Karaikudi, India. Eswaran Perumal is an

Assistant Professor of the Department of Computer Applications, Alagappa University, Karaikudi, India. Dr. Deepak Gupta is an Assistant Professor of the Department Computer Science & Engineering, Maharaja Agrasen Institute of Technology (GGSIPU), Delhi, India.

ai and wearable technology in healthcare: Hybrid Artificial Intelligence and IoT in Healthcare Akash Kumar Bhoi, Pradeep Kumar Mallick, Mihir Narayana Mohanty, Victor Hugo C. de Albuquerque, 2021-07-22 This book covers applications for hybrid artificial intelligence (AI) and Internet of Things (IoT) for integrated approach and problem solving in the areas of radiology, drug interactions, creation of new drugs, imaging, electronic health records, disease diagnosis, telehealth, and mobility-related problems in healthcare. The book discusses the convergence of AI and the hybrid approaches in healthcare which optimizes the possible solutions and better treatment. Internet of Things (IoT) in healthcare is the next-gen technologies which automate the healthcare facility by mobility solutions are discussed in detail. It also discusses hybrid AI with bio-inspired techniques, genetic algorithm, neuro-fuzzy algorithms, and soft computing approaches which significantly improves the prediction of critical cardiovascular abnormalities and other healthcare solutions to the ongoing challenging research.

ai and wearable technology in healthcare: Advanced Healthcare Systems Rohit Tanwar, S. Balamurugan, Rakesh Kumar Saini, Vishal Bharti, Premkumar Chithaluru, 2022-03-02 ADVANCED HEALTHCARE SYSTEMS This book offers a complete package involving the incubation of machine learning, AI, and IoT in healthcare that is beneficial for researchers, healthcare professionals, scientists, and technologists. The applications and challenges of machine learning and artificial intelligence in the Internet of Things (IoT) for healthcare applications are comprehensively covered in this book. IoT generates big data of varying data quality; intelligent processing and analysis of this big data are the keys to developing smart IoT applications, thereby making space for machine learning (ML) applications. Due to its computational tools that can substitute for human intelligence in the performance of certain tasks, artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Since IoT platforms provide an interface to gather data from various devices, they can easily be deployed into AI/ML systems. The value of AI in this context is its ability to quickly mesh insights from data and automatically identify patterns and detect anomalies in the data that smart sensors and devices generate—information such as temperature, pressure, humidity, air quality, vibration, and sound—that can be really helpful to rapid diagnosis. Audience This book will be of interest to researchers in artificial intelligence, the Internet of Things, machine learning as well as information technologists working in the healthcare sector.

ai and wearable technology in healthcare: Artificial Intelligence Technology in Healthcare Neha Sharma, Durgesh Srivastava, Deepak Sinwar, 2024-09-05 Artificial Intelligence Technology in Healthcare: Security and Privacy Issues focuses on current issues with patients' privacy and data security including data breaches in healthcare organizations, unauthorized access to patients' information, and medical identity theft. It explains recent breakthroughs and problems in deep learning security and privacy issues, emphasizing current state-of-the-art methods, methodologies, implementation, attacks, and countermeasures. It examines the issues related to developing artificial intelligence (AI)-based security mechanisms which can gather or share data across several healthcare applications securely and privately. Features: Combines multiple technologies (i.e., Internet of Things [IoT], Federated Computing, and AI) for managing and securing smart healthcare systems. Includes state-of-the-art machine learning, deep learning techniques for predictive analysis, and fog and edge computing-based real-time health monitoring. Covers how to diagnose critical diseases from medical imaging using advanced deep learning-based approaches. Focuses on latest research on privacy, security, and threat detection on COVID-19 through IoT. Illustrates initiatives for research in smart computing for advanced healthcare management systems. This book is aimed at researchers and graduate students in bioengineering, artificial intelligence, and computer engineering.

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ai and wearable technology in healthcare: Artificial Intelligence and Internet of Things Lalit Mohan Goyal, Tanzila Saba, Amjad Rehman, Souad Larabi-Marie-Sainte, 2021-08-25 This book reveals the applications of AI and IoT in smart healthcare and medical systems. It provides core principles, algorithms, protocols, emerging trends, security problems, and the latest e-healthcare services findings. The book also provides case studies and discusses how AI and IoT applications such as wireless devices, sensors, and deep learning could play a major role in assisting patients, doctors, and pharmaceutical staff. It focuses on how to use AI and IoT to keep patients safe and healthy and, at the same time, empower physicians to deliver superlative care. This book is written for researchers and practitioners working in the information technology, computer science, and medical equipment manufacturing industry for products and services having basic- and high-level AI and IoT applications. The book is also a useful guide for academic researchers and students.

ai and wearable technology in healthcare: Machine Learning and the Internet of Medical Things in Healthcare Krishna Kant Singh, Mohamed Elhoseny, Akansha Singh, Ahmed A. Elngar, 2021-04-14 Machine Learning and the Internet of Medical Things in Healthcare discusses the applications and challenges of machine learning for healthcare applications. The book provides a platform for presenting machine learning-enabled healthcare techniques and offers a mathematical and conceptual background of the latest technology. It describes machine learning techniques along with the emerging platform of the Internet of Medical Things used by practitioners and researchers worldwide. The book includes deep feed forward networks, regularization, optimization algorithms, convolutional networks, sequence modeling, and practical methodology. It also presents the concepts of the Internet of Things, the set of technologies that develops traditional devices into smart devices. Finally, the book offers research perspectives, covering the convergence of machine learning and IoT. It also presents the application of these technologies in the development of healthcare frameworks. - Provides an introduction to the Internet of Medical Things through the principles and applications of machine learning - Explains the functions and applications of machine learning in various applications such as ultrasound imaging, biomedical signal processing, robotics, and biomechatronics - Includes coverage of the evolution of healthcare applications with machine learning, including Clinical Decision Support Systems, artificial intelligence in biomedical engineering, and AI-enabled connected health informatics, supported by real-world case studies

ai and wearable technology in healthcare: Digital Health Alan Godfrey, Sam Stuart, 2021-07-09 Digital Health: Exploring Use and Integration of Wearables is the first book to show how and why engineering theory is used to solve real-world clinical applications, considering the knowledge and lessons gathered during many international projects. This book provides a pragmatic A to Z guide on the design, deployment and use of wearable technologies for laboratory and remote patient assessment, aligning the shared interests of diverse professions to meet with a common goal of translating engineering theory to modern clinical practice. It offers multidisciplinary experiences to guide engineers where no clinically advice and expertise may be available. Entering the domain of wearables in healthcare is notoriously difficult as projects and ideas often fail to deliver due to the

lack of clinical understanding, i.e., what do healthcare professionals and patients really need? This book provides engineers and computer scientists with the clinical guidance to ensure their novel work successfully translates to inform real-world clinical diagnosis, treatment and management. Presents the first guide for wearable technologies in a multidisciplinary and translational manner Helps engineers design real-world applications to help them better understand theory and drive pragmatic clinical solutions Combines the expertise of engineers and clinicians in one go-to guide, accessible to all

ai and wearable technology in healthcare: Low-power Wearable Healthcare Sensors R. Simon Sherratt , Nilanjan Dey, 2020-12-29 Advances in technology have produced a range of on-body sensors and smartwatches that can be used to monitor a wearer's health with the objective to keep the user healthy. However, the real potential of such devices not only lies in monitoring but also in interactive communication with expert-system-based cloud services to offer personalized and real-time healthcare advice that will enable the user to manage their health and, over time, to reduce expensive hospital admissions. To meet this goal, the research challenges for the next generation of wearable healthcare devices include the need to offer a wide range of sensing, computing, communication, and human-computer interaction methods, all within a tiny device with limited resources and electrical power. This Special Issue presents a collection of six papers on a wide range of research developments that highlight the specific challenges in creating the next generation of low-power wearable healthcare sensors.

ai and wearable technology in healthcare: Revolutionizing the Healthcare Sector with AI Singla, Babita, Shalender, Kumar, Stamer, Katja, 2024-07-26 The healthcare sector is at a critical juncture, facing the pressing need to integrate generative AI technologies responsibly. Despite the promising benefits, such as improved diagnostics, personalized treatments, and streamlined operations, the adoption of AI in healthcare poses significant challenges. These challenges include ethical dilemmas, regulatory complexities, and the need for governance frameworks to ensure the technology's responsible use. Revolutionizing the Healthcare Sector with AI offers a comprehensive solution to these challenges. It provides a deep dive into the adoption, integration, scalability, and sustainability of generative AI in healthcare and a thorough analysis of governance, ethical, and regulatory issues. By offering insights from researchers, practitioners, patients, and policymakers, this book is a platform for responsible AI adoption in healthcare.

ai and wearable technology in healthcare: Wearable Telemedicine Technology for the Healthcare Industry Deepak Gupta, Ashish Khanna, D. Jude Hemanth, Aditya Khamparia, 2021-11-16 Wearable Telemedicine Technology for the Healthcare Industry: Product Design and Development focuses on recent advances and benefits of wearable telemedicine techniques for remote health monitoring and prevention of chronic conditions, providing real time feedback and help with rehabilitation and biomedical applications. Readers will learn about various techniques used by software engineers, computer scientists and biomedical engineers to apply intelligent systems, artificial intelligence, machine learning, virtual reality and augmented reality to gather, transmit, analyze and deliver real-time clinical and biological data to clinicians, patients and researchers. Wearable telemedicine technology is currently establishing its place with large-scale impact in many healthcare sectors because information about patient health conditions can be gathered anytime and anywhere outside of traditional clinical settings, hence saving time, money and even lives. - Provides readers with methods and applications for wearable devices for ubiquitous health and activity monitoring, wearable biosensors, wearable app development and management using machine learning techniques, and more - Integrates coverage of a number of key wearable technologies, such as ubiquitous textile systems for movement disorders, remote surgery using telemedicine, intelligent computing algorithms for smart wearable healthcare devices, blockchain, and more - Provides readers with in-depth coverage of wearable product design and development

ai and wearable technology in healthcare: Artificial Intelligence and Machine Learning in Healthcare Ankur Saxena, Shivani Chandra, 2021-05-06 This book reviews the application of artificial intelligence and machine learning in healthcare. It discusses integrating the principles of

computer science, life science, and statistics incorporated into statistical models using existing data, discovering patterns in data to extract the information, and predicting the changes and diseases based on this data and models. The initial chapters of the book cover the practical applications of artificial intelligence for disease prognosis & management. Further, the role of artificial intelligence and machine learning is discussed with reference to specific diseases like diabetes mellitus, cancer, mycobacterium tuberculosis, and Covid-19. The chapters provide working examples on how different types of healthcare data can be used to develop models and predict diseases using machine learning and artificial intelligence. The book also touches upon precision medicine, personalized medicine, and transfer learning, with the real examples. Further, it also discusses the use of machine learning and artificial intelligence for visualization, prediction, detection, and diagnosis of Covid -19. This book is a valuable source of information for programmers, healthcare professionals, and researchers interested in understanding the applications of artificial intelligence and machine learning in healthcare.

ai and wearable technology in healthcare: Artificial Intelligence and Machine Learning in Healthcare Arman Kilic, 2025-10-01 Artificial Intelligence and Machine Learning in Healthcare discusses the potential of groundbreaking technologies on the delivery of care. A lot have been said about how artificial intelligence and machine learning can improve healthcare, however there are still many doubts and concerns among health professionals, all of which are addressed in this book. Sections cover History and Basic Overview of AI and ML, with differentiation of supervised, unsupervised and deep learning, Applications of AI and ML in Healthcare, The Future of Healthcare with AI, Challenges to Adopting AI in Healthcare, and ethics and legal processes for implementation. This book is a valuable resource for bioinformaticians, clinicians, graduate students and several members of biomedical field who needs to get up to speed on the revolutionary role of AI and Machine Learning in healthcare. - Provides an overview of AI and ML to the medical practitioner who may not be well versed in these fields - Encompasses a thorough review of what has been accomplished and demonstrated recently in the fields of AI and ML in healthcare - Discusses the future of AI and ML in healthcare, with a review of possible wearable technology and software and how they may be used for medical care

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ai and wearable technology in healthcare: World Report on Ageing and Health World Health Organization, 2015-10-22 The WHO World report on ageing and health is not for the book shelf it is a living breathing testament to all older people who have fought for their voice to be heard at all levels of government across disciplines and sectors. - Mr Bjarne Hastrup President International Federation on Ageing and CEO DaneAge This report outlines a framework for action to foster Healthy Ageing built around the new concept of functional ability. This will require a transformation of health systems away from disease based curative models and towards the provision of older-person-centred and integrated care. It will require the development sometimes from nothing of comprehensive systems of long term care. It will require a coordinated response from many other sectors and multiple levels of government. And it will need to draw on better ways of measuring and monitoring the health and functioning of older populations. These actions are likely to be a sound investment in society's future. A future that gives older people the freedom to live lives that previous generations might never have imagined. The World report on ageing and health responds to these challenges by recommending equally profound changes in the way health policies for ageing populations are formulated and services are provided. As the foundation for its recommendations the report looks at what the latest evidence has to say about the ageing process noting that many common perceptions and assumptions about older people are based on outdated stereotypes. The report's recommendations are anchored in the evidence comprehensive and forward-looking yet eminently practical. Throughout examples of experiences from different countries are used to illustrate how specific problems can be addressed through innovation solutions. Topics explored range from strategies to deliver comprehensive and person-centred services to older populations to policies that enable older people to live in comfort and safety to ways to correct the problems and injustices inherent in current systems for long-term care.

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examines different robotic and AI systems, such as social therapy robots, physical assistant robots for rehabilitation, and wheeled passenger carriers. Highlighting specific problems and challenges in regulating complex cyber-physical systems in concrete healthcare applications, it critically assesses the adequacy of current industry standards and emerging regulatory initiatives for robots and AI. After analyzing the potential legal and ethical issues associated with personal care robots, it concludes that the primarily principle-based approach of recent law and robotics studies is too abstract to be as effective as required by the personal care context. Instead, it recommends bridging the gap between general legal principles and their applicability in concrete robotic and AI technologies with a risk-based approach using impact assessments. As the first book to compile both legal and regulatory aspects of personal care robots, this book will be a valuable addition to the literature on robotics, artificial intelligence, human-robot interaction, law, and philosophy of technology.

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scenarios for wearable technologies in the context of the IoT and as a social and organizational phenomenon.

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population. Written to encourage interdisciplinary collaboration and highlight the importance of cooperation between health professionals, technologies, researchers, and policymakers, this book portrays how this collaborative approach is essential for achieving transformative goals and is not only for professionals but can also be used at the student level as well.

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