1. Record Nr. UNINA9911019516403321

Autore	Sharma Sandeep
Titolo	Artificial Intelligence in Healthcare for the Elderly
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2025 ©2025
ISBN	9781394275380 9781394275366
Edizione	[1st ed.]
Descrizione fisica	1 online resource (419 pages)
Altri autori (Persone)	NagrathPreeti SinglaBhawna RodriguesJoel J. P. C
Disciplina	613.0438
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Series Page -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Smart Aging: Harnessing Artificial Intelligence in Elderly Healthcare -- 1.1 Introduction -- 1.1.1 Overview of AI Applications in Healthcare -- 1.1.2 Importance of AI in Addressing Healthcare Challenges for the Elderly -- 1.2 Demographics and Aging Population -- 1.2.1 Statistics on the Aging Population -- 1.2.2 Healthcare Implications and Challenges of an Aging Society -- 1.3 Healthcare Needs of the Elderly -- 1.3.1 Common Health Issues Among the Elderly -- 1.3.2 Unique Challenges in Providing Healthcare for Seniors -- 1.4 Current Healthcare Technologies for the Elderly -- 1.4.1 Overview of Existing Healthcare Technologies -- 1.4.2 Limitations and Gaps in Current Solutions -- 1.5 AI in Diagnostics and Early Detection -- 1.5.1 Use of AI for Early Detection of Diseases -- 1.5.2 Diagnostic Applications in Geriatric Medicine -- 1.6 Remote Monitoring and Telehealth -- 1.6.1 AI-Enabled Remote Monitoring for the Elderly -- 1.6.2 Telehealth Solutions and Their Impact on Elderly Care -- 1.7 Personalized Medicine for the Elderly -- 1.7.1 Tailoring Healthcare Interventions Based on Individual Characteristics -- 1.7.2 AI Applications in Personalized Treatment Plans -- 1.8 Cognitive Assistance and Mental Health -- 1.8.1 AI Solutions for Cognitive

Assistance -- 1.8.2 Addressing Mental Health Challenges in the Elderly through AI -- 1.9 Ethical Considerations and Privacy Issues -- 1.9.1 Ethical Challenges in Implementing AI in Healthcare -- 1.9.2 Ensuring Privacy and Security in AI-Powered Healthcare for the Elderly -- 1.10 Integration of AI into Healthcare Systems -- 1.10.1 Challenges and Opportunities in Integrating AI into Existing Healthcare Infrastructure -- 1.10.2 Strategies for Successful Implementation -- 1.11 Future Trends and Innovations.
1.11.1 Emerging Technologies in AI for Elderly Healthcare -- 1.12 Conclusion -- References -- Chapter 2 Telehealth Use Among Older Adults During COVID 19 -- 2.1 Introduction -- 2.2 Telehealth in Geriatrics -- 2.2.1 Patient Safety -- 2.2.1.1 Care Coordination -- 2.2.1.2 Fall Prevention and Home Safety -- 2.2.1.3 Medication Review -- 2.2.2 Remote Health Assessment -- 2.2.2.1 Functional Status -- 2.2.2.2 Frailty -- 2.2.2.3 Nutritional Status -- 2.2.2.4 Medicare Annual Wellness Visit -- 2.2.3 Chronic Disease Management -- 2.2.3.1 Dementia -- 2.2.3.2 Depression -- 2.2.3.3 Heart Failure (HF) -- 2.2.3.4 Diabetes Mellitus -- 2.2.3.5 Hypertension -- 2.3 Role of Telehealth During the COVID Pandemic for the Elderly -- 2.3.1 Telehealth SWOT Analysis -- 2.3.2 Implementation of Telehealth Use for Geriatrics -- 2.3.2.1 The COVID-19 Pandemic Has Significantly Impacted the Availability, Accessibility, Affordability, and Quality of Telehealth in Geriatric Care -- 2.3.2.2 Advantages, Disadvantages, Opportunities, and Threats of Telehealth Use in COVID-19-Related Geriatric Care -- 2.3.2.3 Consequences for Practice and Research Gaps -- 2.3.3 Telemedicine in the International Context and Its Use among Older Adults -- 2.3.4 Use of Telemedicine to Meet Healthcare Needs of Older Adults -- 2.3.4.1 Occupational Assessment -- 2.3.4.2 Occupational Intervention -- 2.3.4.3 Rehabilitation Counseling -- 2.3.4.4 Support for Caregivers -- 2.3.4.5 Activity Monitoring -- 2.4 Factor Affecting Utilization of Telehealth in the Elderly during COVID-19 -- 2.4.1 Factor Affecting Utilization and Access -- 2.4.1.1 Access to COVID-Related Services -- 2.4.1.2 Access to Non-COVID-Related Services -- 2.4.1.3 Literacy and Education -- 2.4.1.4 Perceived Attitudes of Aging -- 2.4.1.5 Accommodation Challenges -- 2.4.1.6 Policies and Structures -- 2.4.1.7 Socio-Cultural.
2.4.2 Factor Affecting Behavioral Intention -- 2.4.2.1 Theme: Facilitating Conditions -- 2.4.2.2 Theme: Performance Expectancy -- 2.4.2.3 Theme: Effort Expectancy -- 2.4.2.4 Theme: Social Influence -- 2.5 Experiences of Telehealth in the Elderly -- 2.5.1 Experiences in Elderly -- 2.5.1.1 Silver Linings During the Pandemic -- 2.5.1.2 Some Roadblocks to Success -- 2.5.2 Literature Review on Experiences -- 2.5.3 Key Messages Derived from the Literature -- 2.5.4 Telehealth Interventions -- 2.5.4.1 TCC Smartphone-Based Care Model -- 2.5.4.2 Mobile Integrated Health -- 2.5.4.3 HCWs -- 2.5.5 Various Other Countries' Experiences -- 2.6 Perception of Telehealth Among Elderly and Physicians -- 2.7 Challenges and Barriers of Telehealth for the Elderly -- 2.7.1 Challenges of Telehealth for Elderly -- 2.7.1.1 E-Health Services -- 2.7.1.2 Access to Necessary Resources During Self-Isolation -- 2.7.1.3 A Portion of the Canadian Government's Support in COVID-19 -- 2.7.1.4 Long-Term Care Facilities (LTCFs) -- 2.7.1.5 Consequences of Self-Isolation on the Body and Mind -- 2.7.1.6 Neglect of Older Individuals, Ageism, and Age Discrimination -- 2.7.2 Barriers to Telehealth -- 2.7.2.1 Patient Barriers -- 2.7.2.2 Clinician Barriers -- 2.7.2.3 Structural and Social Determinants of Health Barriers -- 2.7.2.4 Caregivers -- 2.7.2.5 User-Centered Design in the Development of Telehealth Products -- 2.7.2.6 Structural and Organizational Strategies -- 2.7.3 Overcoming Barriers to Telemedicine

Care -- 2.7.3.1 User-Specific Considerations -- 2.7.3.2 Technology-Specific Considerations -- 2.7.3.3 Financial Impact and Reimbursement Policies -- 2.7.3.4 Telemedicine Using Solely Audio -- 2.7.3.5 Extension of Services Added During the Pandemic -- 2.8 Future Direction and Lesson Learned -- 2.9 Conclusion -- References.
Chapter 3 IoT for Seniors: How Technology Improves Quality of Life of Older Adults -- 3.1 Introduction to IoT for Seniors -- 3.1.1 Understanding IoT -- 3.1.2 Relevance of IoT for Seniors -- 3.2 Smart Home Devices for Seniors -- 3.2.1 Smart Thermostat -- 3.2.2 Smart Lighting -- 3.2.3 Voice-Activated Assistants -- 3.3 Health and Wellness Monitoring -- 3.3.1 Wearable Devices -- 3.3.2 Health Tracking Apps -- 3.3.3 Remote Health Monitoring System -- 3.4 Security and Safety of Seniors -- 3.4.1 Telemedicine and Remote Consultation -- 3.4.2 Medication Management System -- 3.4.3 IoT in Assisted Living Facilities -- 3.5 Social Connectivity through IoT -- 3.5.1 Video Calling and Social Apps -- 3.5.2 Online Communities for Seniors -- 3.6 Adapting Existing Devices for Seniors -- 3.6.1 Making Standard Devices Senior-Friendly -- 3.6.2 Accessibility Features in IoT Devices -- 3.6.3 Privacy Measures for Seniors -- 3.6.4 Educating Seniors on Security -- 3.7 Overcoming Technological Barriers -- 3.7.1 Simplifying User Interfaces -- 3.7.2 Providing Tech Support for Seniors -- 3.8 Future Trends in IoT for Seniors -- 3.8.1 An Architectural Framework for Elderly Health Monitoring -- 3.9 Conclusion -- References -- Chapter 4 AI and Robotics in Elderly Personal Assistance: Fostering Independent Living -- 4.1 Introduction -- 4.2 Personalization in Elderly Healthcare -- 4.2.1 Requirements for Personalized Assistance in Elderly Care -- 4.2.2 Customization Standards for Personalization -- 4.3 Design of an Adaptive Real-Time Intervention System for Elderly in Ambient Assisted Living -- 4.3.1 Visual Perception and Self-Localization -- 4.3.2 Context Awareness and Personalization -- 4.3.2.1 Context-Aware Multi-User Activity Recognition -- 4.3.2.2 Active Learning-Based Multi-User Activity Recognition -- 4.3.3 Activity Analysis and Risk Detection.
4.3.3.1 Human Activity Recognition (HAR) -- 4.3.3.2 Behavioral Patterns Analysis -- 4.3.3.3 Personalized Assistance -- 4.3.4 Response Actions as Personalized Assistance -- 4.3.4.1 Inter-Module Communication -- 4.4 Effectiveness of Social Robots in Improving Independence of Elderly -- 4.4.1 Real-Time Examples: Socially Assistive Robots in Promoting Personalization -- 4.4.1.1 Effectiveness in Enhancing Independence -- 4.4.1.2 Personalization for Optimized Care -- 4.5 Conclusion -- References -- Chapter 5 Enabling Independence of Elderly People Using IoT Technology -- 5.1 Introduction -- 5.2 Comprehending IoT: Development and Omnipresence -- 5.2.1 Evolution of IoT Throughout History -- 5.2.2 The Widespread Presence of IoT in Modern Society -- 5.3 Challenges Encountered by Elderly Individuals -- 5.3.1 Physical Health Challenges -- 5.3.2 Challenges Related to Cognition and Mental Health -- 5.3.3 Economic and Societal Obstacles -- 5.4 Constraints of Conventional Approaches -- 5.4.1 Facilities for Institutional Care -- 5.4.2 Home Care Services -- 5.4.3 Challenges in the Healthcare System -- 5.4.4 Cultural and Linguistic Obstacles -- 5.5 Incorporating Internet of Things Technology into Elderly Care -- 5.6 Advancement and Future Research -- 5.7 Summary and Future Prospects -- 5.7.1 Key Findings Summary -- 5.7.2 Prospective Avenues -- 5.8 Conclusion -- References -- Chapter 6 Intersection of AI Tools and Application for Elderly Healthcare -- 6.1 Introduction to the Health Tech Landscape -- 6.1.1 Overview of AI and Emerging Technologies -- 6.1.2 AI in Healthcare Applications -- 6.2 AI-Driven Diagnostics, Imaging and Robotics --

6.2.1 Importance of Medical Imaging in Diagnosing Age-Related Diseases -- 6.2.2 Advancements in Medical Imaging through Artificial Intelligence -- 6.2.3 Robotics in Surgery and Beyond for Elderly. 6.2.4 Exoskeletons: Empowering Mobility for Elderly.

Sommario/riassunto

Artificial Intelligence in Healthcare for the Elderly provides valuable insights into how artificial intelligence can transform healthcare through personalized monitoring, ethical considerations, and real-world applications. Artificial intelligence has the potential to revolutionize healthcare for the elderly by providing efficient and personalized monitoring and care. Though this technology has the potential to revolutionize care, there is currently little information on the potential of this technology in elderly healthcare. Artificial Intelligence in Healthcare for the Elderly explores AI algorithms that can transform health monitoring for older adults by analyzing data from wearable devices, electronic health records, and other sources that provide real-time data analysis, detect early warning signs of diseases, and offer personalized treatment. This book addresses the critical ethical, societal, and practical aspects of elderly care that are often overlooked with insights from various disciplines, including healthcare, technology, ethics, and sociology, to offer a holistic perspective on AI's impact on aging. Artificial Intelligence in Healthcare for the Elderly offers an all-encompassing perspective on AI technologies employed in elderly healthcare by examining the specific types of technology used and delineating its role in elderly healthcare, drawing insights from existing research and case studies.