Record Nr.	UNINA9910616205903321
Titolo	The future circle of healthcare : AI, 3D printing, longevity, ethics, and uncertainty mitigation / / Sepehr Ehsani [and three others], editors
Pubbl/distr/stampa	Cham : , : Springer, , [2022] ©2022
ISBN	3-030-99838-X
Descrizione fisica	1 online resource (411 pages)
Collana	Future of business and finance
Disciplina	174.2
Soggetti	Medical ethics
	Medical innovations - Moral and ethical aspects
	Medical innovations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro Contents About the Editors Abbreviations (Future Circle of Healthcare) Introduction: Trends, Puzzles, and Hopes for the Future of Healthcare 1 The Essentials 2 Longevity and Aging 3 The Technological Turn 4 Uncertainty Everywhere 5 Puzzles and Paradoxes 6 Hopes References Innovations in Psychiatric Care Models: Lessons from the Past to Inform the Future 1 Introduction 2 The Chronic Care Model: Applicability to Psychiatric Care 3 Psychiatry and Measurement-Based Care 4 Current Innovative Psychiatric Care Models 4.1 Collaborative Care 4.2 Reverse Integrated Care 5 A Psychiatric Care Model for the Future 6 Conclusions References Mobile Sensors in Healthcare: Technical, Ethical, and MedicalAspects 1 Mobile Sensors in Healthcare 2 Technical Aspects 3 Ethical Aspects 4 Medical Aspects 5 Conclusions References New Horizons in Studying the Cellular Mechanisms of Alzheimer's Disease 1 Introduction 2 Usage of Mechanistic Concepts and Context of AD Research in Biology 2.1 Actual Mechanisms, Mechanistic Models and Mechanistic Explanations 2.2 AD Research as a Quintessential Mechanistic Research Programme 3 Problems for the Mainstream Biomedical Research Approach to AD 3.1 The Amyloid Cascade Mechanistic Explanation 3.2 Capturing the Full Complexity of the Disease 4 `New

1.

Mechanism' and Clues for Moving Past the Explanatory Problem -- 5 Toward an Ideal `Principled Mechanistic' Explanation in the Context of AD -- 6 Two Biological Principles Relevant to AD -- 6.1 Principle of Cellular Synchrony -- 6.2 Principle of Generative Protein Domains -- 7 Biological Principles and Mechanistic Explanations -- 8 Conclusions --References -- Harnessing AI and Genomics to Accelerate Drug Discovery -- 1 Introduction.

2 Target Identification in the Era of Genomics and AI -- 2.1 Genomics Data as a Key Source of Potential Drug Targets -- 2.2 AI to Prioritize Drug Targets with a Genetic Basis -- 2.3 Knowledge Graphs in Al-Driven Target Discovery -- 3 AI to Accelerate Drug Discovery -- 3.1 Data Are Key -- 3.2 Deep Learning and De Novo Drug Design -- 3.3 AlphaFold 2.0 and Drug Discovery -- 4 Future Directions and Challenges Ahead -- 5 Conclusion -- References -- Ethical Challenges in Applying New Technologies in OrthopedicSurgery -- 1 Introduction -- 2 Non-Maleficence and Beneficence -- 2.1 Safety -- 2.2 Efficacy --2.3 Proficiency -- 2.4 Monitoring Outcomes -- 3 The Relationship Between the Physician and the Industry -- 4 Cost Considerations -- 4.1 The Cost of Healthcare and Health Outcomes -- 4.2 Containing Cost --5 Conclusion -- References -- An Assessment of the AI Regulation Proposed by the European Commission -- 1 Introduction -- 2 Analysis and Assessment -- 2.1 The Definition of AI Is Too Broad -- 2.2 There Is No Need for AI-Specific Regulation -- 2.3 A Lack of Delimitation from the Existing Regulations -- 2.4 The Proposal Includes Unfulfillable Requirements for ``High-Risk Applications" -- 2.5 Overregulation Would Strengthen Chinese and US Corporations -- 2.6 Missing Points -- 3 Recommendations -- 4 Conclusions -- References -- Post-Truth Implications for COVID-Era Healthcare: Verification, Trust, and Vaccine Skepticism -- 1 Introduction -- 2 Key Concepts -- 2.1 Established Institutions -- 2.2 Epistemology/Epistemic -- 2.3 Post-Truth -- 3 Truth and Authority in Scientific Knowledge -- 3.1 Knowledge, Truth, Verification -- 3.2 Trust -- 4 When Banknotes Are Refused -- 4.1 Sources of Mistrust -- 4.1.1 Established Institutions (such as the US Government) Do Bad Things -- 4.1.2 A Class Division -- 4.2 "The Science Says ... " -- 5 Prognostications and Recommendations. 5.1 Options for Established Public Health Institutions -- 5.2 A Tentative Recommendation for Individual Healthcare Providers -- 6 Conclusion -- References -- Patents on Inventions Involving AI in the Life Sciences and Healthcare -- 1 Introduction -- 2 Patent Basics -- 2.1 Definition of a Patent -- 2.1.1 Who Is Entitled to Apply for a Patent? -- 2.1.2 The Inventors' Right -- 2.1.3 Duration of a Patent -- 2.1.4 Scope of Protection of a Patent -- 2.1.5 Rights Conferred by a Patent -- 2.2 Patentable Inventions -- 2.3 Exclusions from Patentability -- 3 AI in the Context of Patent Law -- 3.1 Definition of AI in the Context of Patent Law -- 3.2 Categories of Inventions -- 3.3 Computer-Implemented Inventions (CII) -- 3.4 Technical Character of Inventions Involving AI --4 Patentability of AI-Implemented Inventions -- 4.1 Clarity of the Claims that Define an AI-Implemented Invention -- 4.2 Sufficiency of Disclosure of an AI-Implemented Invention -- 4.2.1 Example of a Sufficient Disclosure -- 4.2.2 Example of Insufficient Disclosure --4.2.3 Important Aspects of Sufficient Disclosure -- 4.3 Novelty of an Invention -- 4.4 Inventive Step of an Invention -- 4.4.1 An Example of a Patent Was Revoked Because It Did Not Include an Inventive Step --4.4.2 Example of a Nonobvious Invention -- 4.5 Summary of the Patentability of AI-Implemented Inventions -- 5 Examples of Patentable Inventions Involving AI in the Life Sciences and Healthcare -- 6 Ethics of Patents -- 6.1 Directive 98/44/EC -- 6.2 In View of the Pandemic --6.3 Ethics and AI Inventions in Life Sciences and Healthcare -- 7 The

Future -- References -- Redesigning Relations: Coordinating Machine Learning Variables and Sociobuilt Contexts in COVID-19 and Beyond --1 Preguel -- 2 Introduction: Process and Use of AI in Decision-Making -- 3 Representing Sociobuilt Contexts: Problems in Parameterization. 3.1 New Directions in Variable Choice -- 3.2 Sociobuilt Contexts -- 3.3 Evidence-Based Design and Transdisciplinary Research -- 4 Reassessment of Relations -- 4.1 "Embodiment" and "Hermeneutic" Relations -- 4.2 Representations of Complex Systems -- 4.3 Ethical Relations -- 5 Conclusion -- References -- Sensor Devices, the Source of Innovative Therapy and Prevention -- 1 Introduction -- 2 Sensors --2.1 Active Versus Passive Sensors -- 2.2 Physical Sensors -- 2.2.1 Mechanical Sensors -- 2.2.2 Radiation Sensors -- 2.2.3 Thermal Sensors -- 2.2.4 Optical Sensors -- 2.2.5 Magnetic Sensors -- 2.3 Chemical Sensors -- 3 Innovative Applications -- 3.1 Diagnosis -- 3.2 Monitoring and Prevention -- 3.3 Therapy -- 4 Recent Advances -- 5 Challenges -- 6 Conclusion -- References -- Digital and Computational Pathology: A Specialty Reimagined -- 1 Transformations of the Past -- 2 Digital Pathology -- 3 Computational Pathology -- 3.1 Background and Definitions -- 3.2 Applications of CPATH -- 3.3 AI Applications Beyond Histopathologic Analysis -- 3.4 Challenges in Pathology AI -- 3.5 Pathologist vs. AI? -- 3.6 Reference Databases, DP Repositories, and Large-Scale Initiatives in CPATH -- 4 Broader Effects on Other Specialties, Education, and Research -- 4.1 Integrative Pathology and Other Specialties -- 4.2 Education and Outreach -- 4.3 Nonclinical Settings: Biobanking, Experimental and Veterinary Pathology, Toxicology, and Pharmaceutical Development -- 5 Conclusions and Perspectives -- References -- Modern Home Care: A Glimpse into the Future of Patient-Centered Healthcare Systems -- 1 A Glimpse into the Future -- 2 The Situation in 2020 -- 3 What Is Still to Be Done? -- 4 Social Relevance -- 5 Conclusion -- References --Teledermatology: Current Indications and Future Perspectives -- 1 Introduction -- 2 Practical Examples -- 3 Chances -- 4 Limits. 5 The Future of Teledermatology -- 6 Conclusion -- References --Using Artificial Intelligence for the Specification of m-Health and e-Health Systems -- 1 Introduction -- 2 Requirements Statement Example: The Stroke Recovery Assistant Case Study -- 3 Requirements Formalisation Process and Techniques -- 3.1 Natural Language Processing -- 3.2 Machine Learning -- 3.3 Requirements Formalisation from Diagrams -- 3.4 Deriving Data Model Specifications from Requirements Statements -- 3.5 Deriving Behavioural Model Specifications from Requirements Statements -- 4 Integration of Automated Requirements Engineering into an Agile MDE Process -- 5 Related Work -- 6 Conclusions -- References -- The Outlook for Novel Pharmaceutics -- 1 Introduction -- 2 Personalised Medicine -- 2.1 Personalised Medicine in the Market -- 2.2 The Outlook for Personalised Medicine -- 3 Gene Therapy -- 3.1 Gene Therapy and Gene Delivery -- 3.2 The Outlook for Gene Therapy -- 4 Nanomedicine -- 4.1 Nanomedicine in the Market -- 4.2 Nanomedicine beyond Cancer -- 4.3 The Outlook for Nanomedicine -- 5 Tissue Engineering and Regenerative Medicine -- 5.1 Regenerative Therapies in the Market -- 5.2 The Outlook for Regenerative Medicine -- 6 Conclusions --References -- The Future Open Innovation Approach in Health Care Needs Patients' Support -- 1 Introduction -- 2 Study 1 -- 2.1 Theoretical Background -- 2.2 Research Design -- 2.3 First Study --2.4 Follow-Up Study -- 2.5 Prototype Model of a Future Health-Care Service Using IT -- 2.6 Findings -- 2.7 Conclusions -- 3 Study 2 -- 3.1 Theoretical Background -- 3.2 Research Design -- 3.3 An Open Innovation Ecosystem Platform for Developing Medical Technology

Products 3.4 Findings 4 Conclusions References Uncertainty in Medicine: An Active Definition 1 Introduction 2 Philosophical Definition of Uncertainty 2.1 The Gap Argument. 2.2 Shortcomings of the Gap Argument