Ethical Principles for Socially Assistive Robotics

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Abstract

The health, education, and other service applications for robots that assist through primarily social rather than physical interaction are rapidly growing, and so is the research into such technologies. Socially assistive robotics (SAR) aims to address critical areas and gaps in care by automating supervision, coaching, motivation, and companionship aspects of one-on-one interactions with individuals from various large and growing populations, including stroke survivors, the elderly and individuals with dementia, children with autism spectrum disorders, among many others. In this way, roboticists hope to improve the standard of care for large user groups. Naturally, SAR systems pose several ethical challenges regarding their design, implementation, and deployment. This paper examines the ethical challenges of socially assistive robotics from three points of view (user, caregiver, peer) using core principles from medical ethics (autonomy, beneficence, non-maleficence, justice) to determine how intended and unintended effects of a SAR can impact the delivery of care.

Introduction

The most obvious and direct risk of any assistive technology, including socially

Ethical Principles For Socially Assistive Robotics

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Ethical Principles For Socially Assistive Robotics:

   Social Robotics Abdulaziz Al Ali,John-John Cabibihan,Nader Meskin,Silvia Rossi,Wanyue Jiang,Hongsheng He,Shuzhi Sam Ge,2023-12-02 The two volume set LNAI 14453 and 14454 constitutes the refereed post conference proceedings of the 15th International Conference on Social Robotics ICSR 2023 held in Doha Qatar during December 4 7 2023 The 68 revised full papers presented in these proceedings were carefully reviewed and selected from 83 submissions They deal with topics around the interaction between humans and intelligent robots and on the integration of robots into the fabric of society This year the special topic is Human Robot Collaboration Sea Air Land Space and Cyberspace focusing on all physical and cyber physical domains where humans and robots collaborate   Transcultural Artificial Intelligence and Robotics in Health and Social Care Irena Papadopoulos,Christina Koulouglioti,Chris Papadopoulos,Antonio Sgorbissa,2022-04-22 Transcultural Artificial Intelligence and Robotics in Health and Social Care provides healthcare professionals with a deeper understanding of the incredible opportunities brought by the emerging field of AI robotics In addition it provides robotic researchers with the point of view of healthcare professionals to understand what the healthcare sector as well as the market really needs from robotics technology By doing so the book fills an important gap between both fields in order to leverage new developments and collaborative work in favor of global patients The book is aimed at the non technical reader especially health and social care professionals and explains in a simple way the technological principles applied in the development of socially assistive humanoid AI robots SAHR the values which guide such developments the ethics related to them and research approaches in the field with a focus on achieving a culturally competent SAHR 2023 PROSE Awards Winner Category Nursing and Allied Health Association of American Publishers Presents user friendly and stage by stage information to help readers appreciate how AI robots work and how they can be integrated in their work environments Explains why AI and socially assistive robotics need to be culturally competent Helps reduce readers fears and change negative prejudices they may have about robots as a relevant tool for healthcare Written by experts in AI robotics and the creators of transcultural health social robotics Informed by the largest trial conducted with real patients   The Elgar Companion to Applied AI Ethics Christoph Lütge,Alexander Kriebitz,Raphael Max,Caitlin C. Corrigan,2024-11-08 This timely Companion provides a comprehensive overview of the relationship between applied ethics and the development and use of Artificial Intelligence AI Adopting a holistic approach an array of global experts identify the norms at stake map the legal landscape and contextualize normative expectations in relevant use cases of AI   **Human Factors in Aging and Special Needs** Jay Kalra,2025-07-26 Proceedings of the 16th International Conference on Applied Human Factors and Ergonomics and the Affiliated Conferences Orlando Florida USA 26 30 July 2025   Robotic Assistive Technologies Pedro Encarnação,Albert Cook,2017-02-03 This book contains a comprehensive overview of all current uses of robots in rehabilitation The underlying principles in each application are provided This is followed by a critical review of the technology available of the utilization

protocols and of user studies outcomes and clinical evidence if existing Ethical and social implications of robot use are also discussed The reader will have an in depth view of rehabilitation robots from principles to practice **Risk Assessment and Management in Pervasive Computing** Varuna Godara,2009-01-01 This book provides extensive information about pervasive computing its implications from operational legal and ethical perspective so that current and future pervasive service providers can make responsible decisions about where when and how to use this technology Provided by publisher

Social Robots: Technological, Societal and Ethical Aspects of Human-Robot Interaction Oliver Korn,2019-07-01 Social robots not only work with humans in collaborative workspaces we meet them in shopping malls and even more personal settings like health and care Does this imply they should become more human able to interpret and adequately respond to human emotions Do we want them to help elderly people Do we want them to support us when we are old ourselves Do we want them to just clean and keep things orderly or would we accept them helping us to go to the toilet or even feed us if we suffer from Parkinson s disease The answers to these questions differ from person to person They depend on cultural background personal experiences but probably most of all on the robot in question This book covers the phenomenon of social robots from the historic roots to today s best practices and future perspectives To achieve this we used a hands on interdisciplinary approach incorporating findings from computer scientists engineers designers psychologists doctors nurses historians and many more The book also covers a vast spectrum of applications from collaborative industrial work over education to sales Especially for developments with a high societal impact like robots in health and care settings the authors discuss not only technology design and usage but also ethical aspects Thus this book creates both a compendium and a guideline helping to navigate the design space for future developments in social robotics Encyclopedia of Ethical, Legal, and Policy Issues in Biotechnology Thomas H. Murray,Maxwell J. Mehlman,2000-10-10 This set is comprehensive and technically literate and more informative on regulation and policy issues Thomas Murray is a world renowned leader in this field Roboethics Spyros G. Tzafestas,2015-07-27 This volume explores the ethical questions that arise in the development creation and use of robots that are capable of semiautonomous or autonomous decision making and human like action It examines how ethical and moral theories can and must be applied to address the complex and critical issues of the application of these intelligent robots in society Coverage first presents fundamental concepts and provides a general overview of ethics artificial intelligence and robotics Next the book studies all principal ethical applications of robots namely medical assistive socialized and war roboethics It looks at such issues as robotic surgery children robot and elderly robot therapeutical social interactions and the use of robots especially autonomous lethal ones in warfare In addition a chapter also considers Japanese roboethics as well as key intercultural and robot legislation issues Overall readers are provided with a thorough investigation into the moral responsibility if any of autonomous robots when doing harm This volume will serve as an ideal educational source in engineering and robotics courses as well as an introductory reference for researchers in the

field **Robot Ethics** Patrick Lin,Keith Abney,George A. Bekey,2011-12-09 Prominent experts from science and the humanities explore issues in robot ethics that range from sex to war Robots today serve in many roles from entertainer to educator to executioner As robotics technology advances ethical concerns become more pressing Should robots be programmed to follow a code of ethics if this is even possible Are there risks in forming emotional bonds with robots How might society and ethics change with robotics This volume is the first book to bring together prominent scholars and experts from both science and the humanities to explore these and other questions in this emerging field Starting with an overview of the issues and relevant ethical theories the topics flow naturally from the possibility of programming robot ethics to the ethical use of military robots in war to legal and policy questions including liability and privacy concerns The contributors then turn to human robot emotional relationships examining the ethical implications of robots as sexual partners caregivers and servants Finally they explore the possibility that robots whether biological computational hybrids or pure machines should be given rights or moral consideration Ethics is often slow to catch up with technological developments This authoritative and accessible volume fills a gap in both scholarly literature and policy discussion offering an impressive collection of expert analyses of the most crucial topics in this increasingly important field **Ethics and Robotics** Rafael Capurro,Michael Nagenborg,2009 Ethics and robotics are two academic disciplines one dealing with the moral norms and values underlying implicitly or explicitly human behavior and the other aiming at the production of artificial agents mostly as physical devices with some degree of autonomy based on rules and programmes set up by their creators Robotics is also one of the research fields where the convergence of nanotechnology biotechnology information technology and cognitive science is currently taking place with large societal and legal implications beyond traditional industrial applications Robots are and will remain in the foreseeable future dependent on human ethical scrutiny as well as on the moral and legal responsibility of humans Human robot interaction raises serious ethical questions right now that are theoretically less ambitious but practically more important than the possibility of the creation of moral machines that would be more than machines with an ethical code The ethical perspective addressed in this volume is therefore the one we humans have when interacting with robots Topics include the ethical challenges of healthcare and warfare applications of robotics as well as fundamental questions concerning the moral dimension of human robot interaction including epistomological ontological and psychoanalytic issues It deals also with the intercultural dialogue between Western and Non Western as well as between European and US American ethicists P 4 of cover **A Construction Manual for Robots' Ethical Systems** Robert Trappl,2015-11-26 This book will help researchers and engineers in the design of ethical systems for robots addressing the philosophical questions that arise and exploring modern applications such as assistive robots and self driving cars The contributing authors are among the leading academic and industrial researchers on this topic and the book will be of value to researchers graduate students and practitioners engaged with robot design artificial intelligence and ethics *Current*

Index to Journals in Education ,1999-10   *Pulmonary Rehabilitation* John R. Bach,1996 Available in the US Canada Latin America and South East Asia except Japan only Not distributed by LWW in Europe   *General Catalog -- University of California, Santa Cruz* University of California, Santa Cruz,2008   Stanford Bulletin ,2006   **Perspectives on Purposeful Activity** Rita P. Fleming Cottrell,1996 Samling af artikler fra AJOT American Journal of Occupational Therapy   *Government Research Directory* ,2010   Learning Socially Assistive Robot Behaviors for Personalized Human-Robot Interaction Christina Moro,2018 Caregivers play a crucial role in assisting seniors having difficulty accomplishing activities of daily living ADLs due to physical or cognitive limitations A global decline in the caregiver to senior ratio is making it increasingly more difficult to care for these seniors Socially assistive robots are promising alternative technologies for supporting seniors in living independently However limited research has gone into developing a learning based method for designing assistive robot behaviors This thesis aims to 1 identify the key features necessary for assistive robots supporting seniors with cognitive impairments in completing ADLs and 2 develop a novel behavior learning architecture to teach robots how to display assistive behaviors using expert demonstrations and personalize these learned behaviors to the senior s cognition using reinforcement learning to increase task performance Experiments with a socially assistive robot validated the robot s ability to learn and personalize new behaviors to a user s cognition from expert demonstration using the proposed architecture   **A World with Robots** Maria Isabel Aldinhas Ferreira,Joao Silva Sequeira,Mohammad Osman Tokhi,Endre E. Kadar,Gurvinder Singh Virk,2017-01-05 This book contains the Proceedings of the International Conference on Robot Ethics held in Lisbon on October 23 and 24 2015 The conference provided a multidisciplinary forum for discussing central and evolving issues concerning safety and ethics that have arisen in various contexts where robotic technologies are being applied The papers are intended to promote the formulation of more precise safety standards and ethical frameworks for the rapidly changing field of robotic applications The conference was held at Pavilh o do Conhecimento Ci ncia Viva in Lisbon and brought together leading researchers and industry representatives promoting a dialogue that combines different perspectives and experiences to arrive at viable solutions for ethical problems in the context of robotics The conference topics included but were not limited to emerging ethical safety legal and societal problems in the following domains Service Social Robots Robots performing tasks in human environments and involving close human robot interactions in everyday households robots for education and entertainment and robots employed in elderly and other care applications Mobile Robots Self driving vehicles autonomous aircraft trains cars and drones Robots used in medicine and for therapeutic purposes Robots used in surveillance and military functions

Reviewing **Ethical Principles For Socially Assistive Robotics**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is really astonishing. Within the pages of "**Ethical Principles For Socially Assistive Robotics**," an enthralling opus penned by a very acclaimed wordsmith, readers set about an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve to the book is central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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