Robotic Caregiver for Elderly People

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Abstract

Over the past few decades, robots have become increasingly popular in a variety of industries. It has become increasingly common to see self-directed robots in human lives, particularly in the lives of elderly people. Older people are becoming more prevalent worldwide. Personal care robots are therefore in greater demand. Increasing mobility and promoting independence are the goals of this demand. In the future, robots care will be in very near contact with people's lives. Where will robots take over the care of old people at home in the future? The paper discusses several aspects of aging, including robot types and aging processes. Throughout the lifecycle of an older adult, robot care plays an important role. The article examines the benefits and drawbacks of using robots in our daily lives.

Introduction

Rapidly changing technology creates an impact on human life. In terms of technological resilience, robots stand out. Humans may find these activities complex, but they are programmed to accomplish them. From grocery store service robots to industrial robots in the automotive industry, robots are affecting our daily lives in many ways.

People worldwide are living longer. Today most people can expect to live into their sixties and beyond. By 2030, 1 in 6 people in the world will be aged 60 years or over(WHO 2021). Every country experiencing growth which renders their needs an important matter to health providing authorities, agents of governments, caregivers, and families. Healthcare robots with automotive scanners and sensors will be used to access older people and take appropriate action accordingly.

Do we need to be concerned about robots being used to care for the elderly? Indeed, there is a rising industry that considers the application of robots for elder care. At the same time, researchers have pointed to some evidence that confirms the profits of robot care for the elderly (Banks et al., 2008). Also, concerns, advantages, and disadvantages of robots.

In this paper, I started with introduction, definition of robot and care robot, different types of robot care and finally go through the Conclusion and recommend some points

Definition of Robot and Care Robot

The recent advancements in robotics now allow robots to perform complex movements, be very skillful and flexible, and even learn from and interact with humans. According to these innovations, the potential application of robots has greatly expanded (Manyika et al., 2013). A number of robotic applications have resulted from the development of robotic technologies in the service robotics sector. Between 2013-2016, the sales of robots for the assistance of old and handicapped people touched about 6,400 units, and it is assumed to undergo a considerable increase within the next 20 years (IFR, 2014). Samples are taking care of old

people at home(Kartal et al., 2016; Portugal et al., 2015; Veloso et al., 2012). Solutions for robotic services range from simple telepresence to more complex features designed to support caregivers.

Considering the entity of a care robot, several definitions are recently offered: Care bots are robots that are designed to assist people, support them, or provide patients, disabled, young, old, or vulnerable people with
needed care, in different places and situations like homes or hospitals (Vallor, 2011).
Sharkey and Sharkey discuss the care robots that are designed for elderly people. They mention three main functions of such robots: to help old people in their everyday careers; to provide aid in monitoring and controlling the elderly's deeds and health and to spend time with them as their companions.

Types of Robot Care

Increasingly aging populations require an influx of caregivers to meet their needs. The number of people willing and able to provide ongoing home-based care is decreasing at a time when the demand for these services is increasing. Robot companions and artificial intelligence are the two most recent innovations that work together to address this increasingly pressing problem. Old age care has three main areas in which robots are looked at as useful or even necessary: assisting elderly and/or carers to fulfill their works and duties, monitoring health and function, providing companionship (Sharkey & Sharkey, 2010b).

Assistance: Different types of robots are able to provide assistance in different ways. Professionally programmed robots can perform simple, short, and restricted tasks, such as cleaner robots like the Roborock or Wyze Robot, or feeding aids such as Bestic or My Spoon that serve users in eating and nursing. A high-tech robot would be required for more sophisticated tasks like personal hygiene.

In-home monitoring: Robots are used in homes to track user behavior that matters for health and safety. A few examples of these behaviors include not getting up for bathroom breaks, falling and not getting up afterward, and staying in bed for long periods of time. As a result, robots immediately alert health services to such states. A doctor or a family member may also be informed about other types of behavior, such as eating habits or treatment.

Companionship: These robots provide companionship and interfere when necessary. In general, these types of robots are programmed to be socially cooperative. These robots have been in commercial use for more than a decade now. They come in different forms: robotic domesticated animals such as the Sony AIBO robot dog, the Pleo dinosaur, and the Paro Seal. A topic that is not much argued about and yet is related to robot carers is child care (Lin et al.; Sharkey & Sharkey, 2010a)

Conclusion and Recommendations

Various industries have been using robots for the last decades. A self-governing robot has been employed in human lives, especially as a way to manage the lives of the elderly and children. There is an increase in the number of elderly people worldwide; therefore, robots that offer personal care are more necessary than ever. The purpose is to facilitate independent movement and improve mobility. Toward the end of the century, humans are expected to collaborate closely with personal care robots. Both children and adults can benefit from robots in their daily lives based on the concepts presented in this article. Despite the need for social contact among the elderly, they may be unsure of the technology that makes interactive robots appear approachable. Scholars have investigated both of these factors to enhance the propensity to be anthropomorphic in recent accounts (Epley et al., 2007). There is always a risk of elderly people falling over or getting sick, or getting confused or lost. Leaving them alone is not a good idea. So, leaving an elderly person with a robot for long hours is not recommended. A robotic literacy program should be implemented for the elderly. Such 'literacy' will let them learn about these facts:

- The mechanism of producing, maintaining and operating robots, highlighting their man-made properties;
- What are the limits and potentials of different types of robotic technological knowledge?

References

Manyika, J., Chui, M., Bughin, J., Dobbs, R., Bisson, P., & Marrs, A. (2013). Disruptive technologies: Advances
that will transform life, business, and the global economy (Vol. 12): McKinsey Global Institute San
Francisco, CA. Retrieved from https://www.sommetinter.coop/sites/default/files/etude/files/report_
mckinsey_technology_0.pdf

Sharkey, N., & Sharkey, A. (2010b). Living with robots: Ethical tradeoffs in eldercare. Close engagements with
artificial companions: Key psychological, social, ethical and design issues, 245-256. Retrieved from
https://benjamins.com/#catalog/books/nlp.8.29shaS

Vallor, S. (2011). Carebots and caregivers: Sustaining the ethical ideal of care in the twenty-first century.
Philosophy & Technology, 24(3), 251-268. Retrieved from
http://link.springer.com/article/10.1007/s13347-011-0015-x

Sharkey, N., & Sharkey, A. (2010a). The crying shame of robot nannies: an ethical appraisal. Interaction Studies,
11(2), 161-190. Retrieved from

https://www.lucs.lu.se/wp-content/uploads/2016/01/KKEG16_sem2_the-crying-shame-of-robot-nannies.pdf