Towards the improvement of Healthy Ageing with Humanoid Robots

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Index Terms

Engineering; Robotics; Health Sciences

ABSTRACT

In 2015, 125 million people worldwide were aged 80 years or older. By 2050, it is predicted that 350 million of older people will live in low- and middle-income countries [1]. According to the The World Health Organization two key environmental factors to have a Healthy Ageing are long-term care and care givers. Similarly, there are a wide range of challenges in Healthy Ageing such as the improvement of methodologies for measurement, monitoring and understanding ageing problems.

I am therefore proposing the use of Humanoid Robots to create methodologies for measurement, monitoring and understanding the physical activity of the elderly. Elderly care using Robots has been mainly well developed in Japan. For instance, (a) Ri-Man can see, hear and assess a person's health; (b) Paro therapy bot help people with dementia; and (c) Palro humanoid robot can play games and dance to mention but a few. Similarly, humanoid robots such as Pepper and NAO have been used to understand the emotions of people, to play games with humans or play football between NAO robots. Additionally, NAO has been used to teach diabetic children about various aspects of their condition. NAO has also been used for arm rehabilitation therapy for children. However, there is little research with regard to the encouragement of the elderly to perform appropriatelly physical activity. For this work, I am therefore planning to present preliminary outcomes of human-robot interaction scenarios of entertainment and rehabilitation in which NAO will behave as a instructor and participants will use on-body worn sensors to analyse the quality of movement. Methodologies for data processing and the measure of the quality of activities within and across participants using on-body inertial sensors will be presented.

Finally, I will pointed out to the Mexican community that Humanoids Robots and sensors attached to the body will help us to measure, to analise, to understand and to improve the health of the elderly.

REFERENCES

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