Towards the improvement of Healthy Ageing with Humanoid Robots

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Index Terms

Engineering; Robotics; Health Sciences

ABSTRACT

In 2015, it was estimated that 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]. It is important to note that some of the key environmental factors to have a Healthy Ageing are long-term care and care givers. The World Health Organization mentions that one of the main challenge in order to create a Healthy Ageing is the improvement of methodologies for measurement, monitoring and understanding many ageing problems.

I am therefore proposing the use of Humanoid Robots to create methodologies for measurement, monitoring and understanding 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; (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 football or to play games with humans. In the case of health applications, NAO has been used to teach diabetic children about various aspects their condition. NAO has also been used for arm rehabilitation therapy for children to which children found the Robot interaction activity as one which is more engaging and increase the motivation of children to perform an adequate rehabilitation therapy. However, there is little research with regard to the encouragement of the elderly to perform physical activity in the right way. Therefore, I am planning to present preliminary outcomes of the use of NAO as a instructor for participants using on-body worn sensors to copy movements in scenarios for entertainment and rehabilitation. I am going to present the advantages and disadvantages of using on-body inertial sensors, methodologies for data processing and the measure of the quality of activities within and across participants in the context of Human-Robot Interaction.

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

[1] W. H. Organization. Ageing and health. [Online]. Available: http://www.who.int/mediacentre/factsheets/fs404/en/

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