Robots could lend a helping hand

June 4 2013

With a rapidly ageing population, the number of people with dementia and other age-related disabilities is expected to soar by 2050.

Coupled with warnings about future shortages of health workers and doctors, scientists are working to identify solutions that can meet the future healthcare needs of society.

The concept of applying findings from different technological areas to

assist people in their daily activities, while also alleviating pressures on health professionals and carers, has emerged as a potential solution.

It is these Quality of Life Technologies (QOLTs) that are of particular interest to Dr Oscar Martinez Mozos, Lecturer in the School of Computer Science at the University of Lincoln, UK.

During the last two and a half years Dr Mozos has been working on assistive robotic technologies at Kyushu University in Japan, where he currently keeps a position as an external collaborative researcher.

He is bringing together some of the world's leading researchers in this area at a special session for an international conference to be held in Spain from 10th to 14th June 2013.

Dr Mozos, whose research specifically focusses on the application of computer science to service robotics, assistive technologies, medicine and industry, said: "Typical applications for QOLTS are support aids for people with some kind of disability, such as assistance robots and rehabilitation technologies, but they also include powerful tools to improve well-being of individuals and society in general. It's basically using technology to enhance the lives of people in any way, whether it is by programming robots to perform specific tasks or through the delivery of medicines. The aim of the conference is to bring together the top academics in this field and link the various disciplines, which include engineering, computer science, medicine, psychology and social sciences."

Dr Mozos is now working with colleagues to collate the diverse research strands in a special issue of the *IEEE Journal of Biomedical and Health Informatics* in June 2014.

Professor Cipriano Galindo, from the University of Malaga, Spain, and

Professor Adriana Tapus, from the ENSTA-ParisTech, France, are also guest editors.

A project Professor Galindo is involved in aims to develop a system that will perform a range of services, including data collection and analysis of human behaviours through a 'telepresence' robot. The Giraff+ system will be installed and evaluated in at least 15 homes of elderly people in Sweden, Italy and Spain.

Professor Tapus is currently working on how assistive robots can provide affordable and personalised cognitive assistance, motivation and companionship to users suffering from conditions related to ageing or Alzheimer's disease.

She said: "An important and growing trend in modern robotics research is to create robots with human-like qualities, which will allow robots to interact naturally with humans and to become a part of our lives. The main advantages of my research project are that it provides time-extended personalised cognitive and social interaction and "exercise" in a robot-supervised fashion. This is an entirely novel area of research in assistive and rehabilitation robotics and it opens up a broad avenue for future discovery and development."

The fifth International Work-conference on the Interplay between Natural and Artificial Computation (IWINAC2013), where Dr Martinez Mozos will be leading a special session on Quality of Life Technologies, takes place in Palma de Mallorca, Balearic Islands, Spain, on 10th to 14th June 2013.

Provided by University of Lincoln

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