

CADENZA Symposium 2013

流金頌

Date: 11 October 2013

Time: 9:00 am – 5:30 pm

Venue: Shaw Auditorium, Jockey Club School of Public Health, Prince of Wales Hospital, Shatin

Matching Technology to Needs



Funded by:

Organiser:

Co-organisers:



香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust



Faculty of
Social Sciences
The University of Hong Kong



FACULTY OF MEDICINE
THE CHINESE UNIVERSITY OF HONG KONG

Supporting Organisations:



Lingnan 嶺南大學
University

Asia Pacific Institute of Ageing Studies, Lingnan University



Elderly Commission



Hong Kong Housing Society



Innovation and Technology Commission



Institute of Active Ageing, The Hong Kong Polytechnic University



Sau Po Centre on Ageing, The University of Hong Kong



School of Design, The Hong Kong Polytechnic University

CADENZA: A Jockey Club Initiative for Seniors

CADENZA: A Jockey Club Initiative for Seniors is launched and funded by The Hong Kong Jockey Club Charities Trust in light of the rapidly ageing population. It is a HK\$380 million project in partnership with the Faculty of Social Sciences of The University of Hong Kong and the Faculty of Medicine of The Chinese University of Hong Kong. The project aims at creating an elder-friendly environment in Hong Kong to foster positive community attitude towards ageing and continuously improve the quality of care and quality of life of older people.

CADENZA has 4 major components:

Public Education

Public education programmes aim to promote healthy and positive ageing and Age-Friendly Hong Kong, and highlight important issues pertaining to the elderly population covering six themes: (1) health promotion and maintenance; (2) health and social services in Hong Kong; (3) living environment; (4) financial and legal issues; (5) quality of life and quality of dying; and (6) age disparities. More than 260 public education activities and 5 annual symposia were held, reaching more than 4 million citizens. Moreover, a series of research reports and journal publications documented the current service needs and evaluation of models of care for the elderly.

Community Projects

CADENZA has partnered with non-governmental organizations ("NGOs") to demonstrate new service delivery models to improve quality of life and quality of care for elderly people. A number of community projects have been launched, with evaluation conducted by academics. Examples include: Active Interest Mentorship Scheme: to encourage the soon-to-retain people and retired people to develop active interests; Elder-Friendly Employment Practice: to promote elder employment; CADENZA Hub: a one-stop integrated health and social care centre; Cherish Our Life: Enhancing Psychological Well-being of Elders: to promote psychological well-being of elderly people; LinkAges Community Project: to raise public awareness on inter-generational communication.

Training Programme

A five-year interdisciplinary programme launched in 2008 to provide multi-level education and training to different levels of professionals and frontline workers involved in elderly work as well as family carers and the general public, not only in terms of skills, but also the way they view and treat the people they serve. Its various programmes including seminars, workshops, web-based courses, roadshows, and community carnivals, have reached out to more than 38,000 people.

Leadership Training and Research

This component aims to train new leaders in gerontology and support pilot projects with NGOs. 30 CADENZA Fellows from different disciplines (such as social work, nursing, allied health, rehabilitation engineering, psychology, optometry and medicine) have been trained, and 18 projects on new service models and new practice, such as pain management, insomnia treatment, bereavement care, art therapy and continence management, have been launched.



Introduction

CADENZA: A Jockey Club Initiative for Seniors aims to create an elder-friendly environment in Hong Kong that fosters positive community attitude towards ageing and continuously improves the quality of care and quality of life of older people. Since 2006 many activities have been carried out along this theme in the areas of Public Education, Community Projects, Training Programme, and Leadership Training and Research.

One major event of public education efforts is the CADENZA Symposium, which seeks to raise awareness and stimulate societal engagement in key areas, such as preparation for an elder-friendly Hong Kong, successful ageing, primary care-key to medical and social integration, age-friendly world cities and environment, and caring for people with dementia: needs and services.

In this 2013 symposium, we focus on a rapidly developing area in how technology may help to improve quality of care and quality of life among older persons. Ageing societies all over the world are faced with shortage of healthcare staff for the elderly, and in particular the care of those with cognitive impairment or physical disabilities. The path from invention of a product to its uptake in service has many stages. A key first step is to identify the needs of frail older people, and communicating these needs to inventors of prototypes. This is followed by a series of modifications, clinical trials and evaluation in terms of user feedback, cost effectiveness and cost benefit studies. Finally, marketing companies need to take over before it can reach the end user. It is only when all these steps are fulfilled that technology will play a significant role.

The lectures and exhibition with experts representing these different stages serve to highlight these necessary steps in the systematic development of a product that will be of use. If harnessed well, technology may make a great contribution to quality of care and quality of life of older persons.

Professor Jean Woo
CADENZA Project Director

About CADENZA Symposium:

CADENZA Symposium provides a platform where overseas and local experts can exchange new insights in the understanding of ageing issues. Since the launch of CADENZA in 2006, five symposia have been organized:

2007	Preparing for an Elder Friendly Hong Kong
2008	Successful Ageing
2009	Primary Care & Older Persons – Key to Medical & Social Integration
2010	Age-Friendly World Cities & Environment
2011	Caring for People with Dementia: Needs and Services

Programme

11 October 2013 (Friday)

9:00 am – 5:30 pm

Opening Ceremony

- 09:00 **Welcoming Remarks**
Professor Joseph Sung SBS JP Vice-Chancellor and President, The Chinese University of Hong Kong
- 09:05 **Opening Address**
Dr Simon Ip CBE JP Deputy Chairman, The Hong Kong Jockey Club
- 09:10 **Officiating Address**
Dr Ko Wing Man BBS JP Secretary for Food and Health, The Hong Kong Special Administrative Region Government
- 09:20 **Keynote Address**
Professor Alfred Chan BBS JP Chairman, Elderly Commission
- 09:35 **Souvenir Presentation**

Talks

- 09:45 **Introduction**
Professor Jean Woo Project Director, CADENZA
- 10:05 **Seal Robot, PARO, as Neurological Therapeutic Device for Dementia Patients**
Dr Takanori Shibata Chief Senior Research Scientist, National Institute of Advanced Industrial Science and Technology, Japan
- 10:40 **Tea Break and Booth Exhibition**
- 11:10 **Robotic Technology for the Elder Care**
Professor Xu Yangsheng President, The Chinese University of Hong Kong, Shenzhen
- 11:40 **Technologies to Help Older People Maintain Independent Living**
Ms Alice Chow Manager, Bio-Medical Electronics Team, Hong Kong Applied Science and Technology Research Institute

Panel Discussion

- 12:00 **Potential Use of Advanced Technology in Care of Older People**
- Moderator:**
Professor Yue On-ching Science Advisor, Innovation and Technology Commission
- Discussants:**
Professor Jean Woo
Dr Takanori Shibata
Professor Qian Huihuan
Ms Alice Chow

- 12:30 **Lunch Break and Booth Exhibition** (Light lunch will be provided)



Discussion Forums

14:00 **Part I: Innovation for Supporting Independent Living of the Elderly**

Moderator:

Dr Terry Lum *Director, Sau Po Centre on Ageing, The University of Hong Kong*

Speakers:

Innovations in Home Design for Senior Citizen Housing

Dr Cheung Moon-wah *General Manager (Elderly Services), Hong Kong Housing Society*

Design for Social Innovation in Active Ageing

Mr Alvin Yip *Director, Jockey Club Design Institute for Social Innovation, School of Design, The Hong Kong Polytechnic University*

Technologies to Enhance Living Quality of the Elderly in the Community

Ms Irene Leung *Chief Executive Officer, Senior Citizen Home Safety Association*

Fabric-based Solutions for Better Living Quality for Elderly

Dr Ho Kai-chiu *Director, Research and Development, Hong Kong Research Institute of Textiles and Apparel*

Smart Use of Information and Communications Technology for Frail Elderly

Ms Maggie Leung *Executive Director, The Hong Kong Society for the Aged*

15:15 Tea Break and Booth Exhibition

15:45 **Part II: Experience in Use of Advanced Technology for Geriatric Patients**

Moderator:

Professor Timothy Kwok *Director, Jockey Club Centre for Positive Ageing*

Speakers:

Experience in Use of IT for Older People

Mr Alex Yue *Department Manager, Occupational Therapy Department, Shatin Hospital*

Pet Robot Therapy: Experience in Shatin Hospital

Ms Kitty Sit Lok Mun *Occupational Therapist II, Shatin Hospital*

Evaluation of Use of IT Products for Geriatric Rehabilitation

Dr Chan Tuen Ching *Resident Specialist, Queen Mary Hospital & Fung Yiu King Hospital*

17:00 **Closing Remarks**

Professor Jean Woo *Project Director, CADENZA*

Speakers' Biographies and Abstracts

Seal Robot, PARO, as Neurological Therapeutic Device for Dementia Patients

Dr Takanori Shibata

Robot therapy, which uses robots as a substitution for animals in “animal therapy,” is a new robot application in the fields of welfare and patient care. The seal robot PARO began development for robot therapy in 1993. PARO was commercialized in Japan in 2005 and in Europe and the U.S. in 2009. Since then, about 3,000 PAROs have been used in hospitals and care facilities in approximately 30 countries. Recent research has revealed that robot therapy has a similar effect on patients as animal therapy. In 2009, the U.S. Food and Drug Administration (FDA) certified PARO as a neurological therapeutic device in bio-feedback medical device. While PARO can be used in various kinds of therapy similar to real animals, this presentation focuses on its use with elderly dementia patients because explicit differences can be easily observed before and after interacting with PARO. First, the purposes and functions of PARO will be explained. Second, because there are several observational studies on the therapeutic effects of the elderly with dementia interacting with PARO, some typical cases and interesting special cases will be introduced. These cases include recovery from depression, reduction of agitation, and recovery from speech disorders. In addition, they include cases of reduction of usage of medications in dementia care. Finally, reasons why PARO has the potential to change moods and behaviors of the elderly with dementia as a non-pharmacological approach will be explained.



Fig. 1 Seal Robot, PARO



Fig. 2 Robot Therapy in Denmark

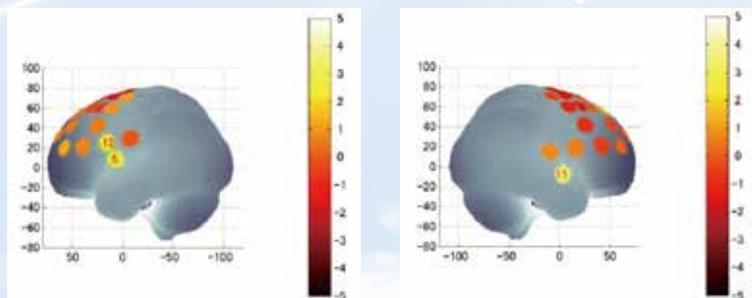


Fig. 3 Stimulation to brain by PARO measured by fNIRS (functional Near-infrared Spectroscopy)

Reference

[1] Takanori Shibata, *Therapeutic Seal Robot as Biofeedback Medical Device: Qualitative and Quantitative Evaluations of Robot Therapy in Dementia Care*, *Proceedings of the IEEE*, Vol. 100, No. 8, pp. 2527-2538, 2012



Biography



Dr Takanori Shibata is the Chief Senior Research Scientist of Human Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST). He is also a Visiting Professor of Tokyo Institute of Technology, and Visiting Fellow of AgeLab, Massachusetts Institute of Technology (MIT), United States.

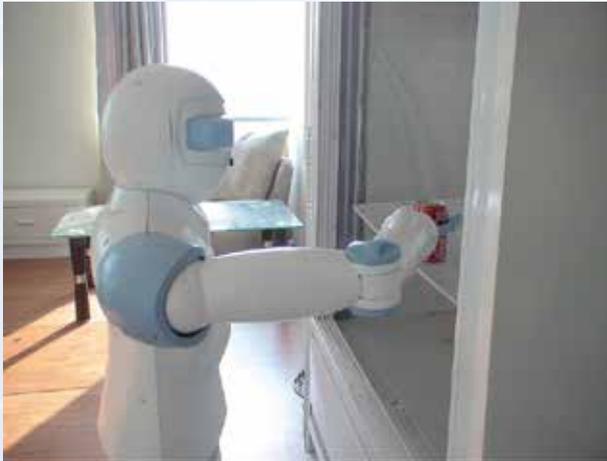
Dr Takanori Shibata was born in 1967 and received B.S., M.S. and Ph.D. in Electronic and Mechanical Engineering from Nagoya University in 1989, 1991 and 1992, respectively. He was a research scientist at AIST from 1993 to 1998. Concurrently, he was a visiting research scientist at the Artificial Intelligence Lab., MIT between 1995 and 1998, and a visiting research scientist at the Artificial Intelligence Lab., University of Zurich in 1996. At the AIST, Dr Shibata was a senior research scientist from 1998 to 2013. He also served as the Deputy Director for Information and Communication Technology Policy, Bureau of Science, Technology, and Innovation Policy, Cabinet Office of the Government of Japan from 2009 to 2010. He has been holding the current positions since 2013.

His research interests include human-robot interaction, robot therapy, and humanitarian de-mining. He was certified as the inventor of a seal robot named PARO, the World's Most Therapeutic Robot, by Guinness World Records in 2002. He has received many awards, including the Robot of the Year by Ministry of Economy, Trade and Industry, Japan in 2006, the outstanding young person of the world by Junior Chamber International in 2004 and the Japanese Prime Minister's Award in 2003.

Robotic Technology for the Elder Care

Professor Xu Yangsheng

With the increased demand in the elderly care, traditional labour-based caring centres and hospitals are in need of new technologies to provide more comprehensive services. This talk will give an overview of the technologies that robotic scientists have been developing over 30 years for benefits in elderly care. The presentation will then elaborate some robotic and intelligent systems developed in our research laboratory. The systems include the robotic housekeeper providing service at home; the robotic walking assistant providing fall-preventive help and household appliance control; the interactive pet robot for elderly entertainment; the intelligent shoe system for fall detection; the calligraphy robot providing upper limb training through calligraphy writing; and the exoskeleton robot to support human body and re-train walking.





Biography



Professor Yangsheng Xu is Professor of Automation Engineering and President of The Chinese University of Hong Kong, Shenzhen. He is also concurrently Associate Director of Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences. He received his BEng and MEng degrees in Zhejiang University in 1982 and 1984 respectively, and pursued further studies in University of Pennsylvania and received his PhD in 1989. Thereafter, he worked on robotic research at Carnegie Mellon University from 1989 to 1997, and joined The Chinese University of Hong Kong in 1997.

He served as Department Chairman, Assistant to Vice-Chancellor, Associate Pro-Vice-Chancellor, Pro-Vice-Chancellor/Vice-President in The Chinese University of Hong Kong, and Director of Shenzhen Institutes of Advanced Technology, which was jointly established by Chinese Academy of Sciences, Shenzhen municipal government and The Chinese University of Hong Kong.

Professor Xu's research includes space robotics, intelligent control and systems. He has developed over 30 robotic systems and led over 30 projects funded by government and industries. More recently, he has been interested in service robotics, man-machine interfaces and intelligent hybrid electric vehicles. His research has resulted in over 300 publications including 6 books. He is Academician of Chinese Academy of Engineering, Fellow of IEEE, Fellow of Hong Kong Academy of Engineering Science, Academician of International Eurasian Academy of Sciences, and Fellow of International Academy of Astronautics.

Technologies to Help Older People Maintain Independent Living

Ms Alice Chow

The population of Hong Kong's elderly aged above 65 will increase 14% in 2016 and will further increase by 27% in 2033. Seventy percent of the elderly are suffering from one or more chronic diseases. It would be tremendously beneficial to the elderly as well as to the Hong Kong society if the elderly can stay at their own residences for substantial duration rather than be admitted to the elderly centers or hospitals. Initiated and funded by the Innovation and Technology Commission, an "iHome" project was conducted by Hong Kong Applied Science and Technology Research Institute (ASTRI) in early 2012 with the collaboration of The Hong Kong Polytechnic University and Hong Kong Housing Society. Five innovative technologies, including (1) Telecare system, (2) Wireless reflective optical pulse oximeter, (3) Telehealth hub, (4) Environmental control system, and (5) Mobile and wearable sensors for healthcare, were developed, fabricated and integrated under one roof in a home-like context for senior citizen users. The technology demonstration presented in the "iHome" has provided a good platform for the study of user requirements in an elderly home. Three hundred eighty four visitors to "iHome" were surveyed during the early "open-house" of the "iHome" with 78% of them agreed that the advanced technological prototypes installed at the "iHome" can effectively assist the living of the elderly.

Apart from this project, ASTRI has also taken a technology direction in pursuing elderly care technologies as a major subset of our tele-care applications. ASTRI has intended to provide solution-engineering involving uniquely packaged, new or/and available modern equipment and application-software into practical, user-friendly systems meeting the unique requirements in elderly healthcare. A tele-care system was developed for COPD (Chronic Obstructive Pulmonary Disease) patients in Hong Kong in 2011. A self-health care regime for patients was established by ASTRI with the provisions of SMS reminders on patients' mobile phone for vital sign measurement, medication and purse-lip breathing exercise. Forty COPD patients were recruited by the Nethersole School of Nursing of The Chinese University of Hong Kong. Ninety-one percent of the elderly patients have indicated that they were satisfied with this experimental telecare service of monitoring their respiratory conditions at home. The overall satisfaction rating of the ASTRI tele-care system was found to be 3.95/5.



Biography



Ms Alice Chow is a manager of the Bio-Medical Electronics (BME) team in Hong Kong Applied Science & Technology Research Institute. She has a Research & Development professional tenure of thirteen years working in a broad variety of technical fields spanning from electronics packaging, optics, system integration and biomedical. In the recent years, Alice has served as project coordinator and principal investigator of several ITF projects funded by the Innovation and Technology Commission. The projects include brain training device for amblyopia treatment and binocular vision training, telecare system for chronic obstructive pulmonary disease, and “iHome” for assisting independent living for the elderly. Due to the close collaborations with a number of medical professionals in the past three years, she has accumulated practical experience in supporting and facilitating medical professionals in the design of clinical evaluation protocols and implementation of patient trials. Alice is also a productive inventor having owned a number of granted US patents.

Exhibitors

1. Senior Citizen Home Safety Association



To showcase a series of territory-wide 24-hour personal and emergency assistance services provided by SCHSA, including Personal Emergency Link Service, Mobile Link Service, e-Care Link Service and Safety Phone Service. Visitors may earn first-hand service experiences and information of SCHSA services from various demonstrations and brochures.

2. Hong Kong Research Institute of Textiles and Apparel



The Hong Kong Research Institute of Textiles and Apparel (HKRITA) develops textiles technologies that are applicable to our daily life. HKRITA will showcase wearable electronics for better alzheimer's patient management – a tracking system for elderly care homes by the application of Radio Frequency Identification (RFID) technologies, medical textiles for eczema patients to improve the efficiency of treatment, and intelligent impact protectors based on 3D auxetic fabrics which can well balance high protective performance with comfortability.

3. Hong Kong Applied Science and Technology Research Institute



Hong Kong Applied Science and Technology Research Institute (ASTRI) will showcase two products:

- (1) An invention using communication principles to allow patients recovered from stroke or spinal cord injuries to do exercises to regain motor functions;
- (2) Smart Health Pulse Oximeter, which uses the reflective technology, can check and record the pulse and oxygen level in blood by a finger sensor. ASTRI is working further on this technology with a view to developing it into an app to be used in smart phone so that patients can check their health condition (e.g. oxygen level in blood, pulse, blood pressure and the level of blood sugar) anytime and anywhere.

4. The Chinese University of Hong Kong and Shenzhen Institutes of Advanced Technology



The Chinese University of Hong Kong (CUHK) and Shenzhen Institutes of Advanced Technology (SIAT) have been conducting researches in robotics and intelligent systems for elderly caring and rehabilitation. Sample systems include the intelligent shoe system which can train the lower-limbs and feet for actions, the Callibot which can guide the upper-limb to enjoy the art of calligraphy, the pet robot which can accompany elderly, the exoskeleton robot which can support the body and retrain walking gaits, and the Q-robot which can interact with users through video, audio and motion.

5. CADENZA: A Jockey Club Initiative for Seniors



CADENZA has four major components. Project highlights will be showcased in the exhibition booth since its launch in 2006. Some of the past activities include:

- (1) Public Education: 18-District Public Education Programme (「光輝歲月流金頌」十八區公眾教育活動), CADENZA TV Series and CADENZA Symposium.
- (2) Community Projects: A total of ten Community Projects have been launched, including CADENZA Hub, Jockey Club Charles Kao Brain Health Service, Elder-Friendly Employment Practice, Elder at PEACE and Linkages.
- (3) Training Programme: Public seminars, carnivals and web-based courses to disseminate knowledge and caring skills to formal and informal carers.
- (4) Leadership Training and Research: CADENZA Workshop Series 2011 and 2013 and press conferences to release results of the studies on "Challenges of Population Ageing on Disease Trends and Burden".

The CADENZA Training Programme will also demonstrate two online platforms: teaching and learning resources on population aging of Liberal Studies for secondary school students and self-learning of chronic disease management for the general public.



6. Jockey Club Centre for Positive Ageing



Jockey Club Centre for Positive Ageing will share two websites developed by the Centre:

- (1) ADcarer.com (耆智同行)
A multi-domain online centre for self-learning of and support to family caregivers of people with dementia. Online individual intervention is available for intensive coaching and counselling about various caring difficulties.
- (2) Online Life Story Work in Chinese (首個華語網上生命故事計劃)
A Chinese online platform to facilitate family caregivers to record life story of the elderly easily, with the aim to improve understanding of the elderly, enhance relationships and promote the delivery of person-centred care to the elderly, especially those with dementia.

7. KineLabs, The Hong Kong Polytechnic University



KineLabs exploit the new era of elderly exercise and stroke rehabilitation. It benefits the elderly and persons with motor disabilities after stroke for rehabilitation and improvement of their quality of life. Integrating rehabilitation and fun together, KineLabs platform provides three rehabilitation games which are free and offer coordinated upper limb, lower limb and trunk balance training tasks and also support multi-players. Moreover, during the training, performance data and 3D information of body segments of the players could be captured and further analysed. The platform can promote healthy ageing and interactive rehabilitation training at home, hospitals and elderly centres. KineLabs won the Grand award in The Asia Pacific ICT Alliance 2012: e-Health Category, and Silver Award in Hong Kong ICT Awards 2012: Best Innovation & Research Award.

8. Institute of Active Ageing, The Hong Kong Polytechnic University



The Institute of Active Aging (IAA) is an interdisciplinary research, academic and practice centre for the advancement of knowledge to facilitate active ageing.

Six Arts Fun App consists of six cognitive stimulating games with six traditional art elements for seniors to exercise their brains. A dementia self-test and a CG-animated movie created by Hong Kong Alzheimer's Disease Association, School of Design of The Hong Kong Polytechnic University and Imagi Studio are also introduced in the application in order to increase public awareness and understanding of dementia.

9. Occupational Therapy Department, Shatin Hospital



Shatin Hospital will showcase the PARO which is an advanced interactive seal robot developed by Dr Takanori Shibata. The robot has documented physiological, psychological and social benefits for dementia patients and has been certified by the US Federal Drug Administration as a medical device.

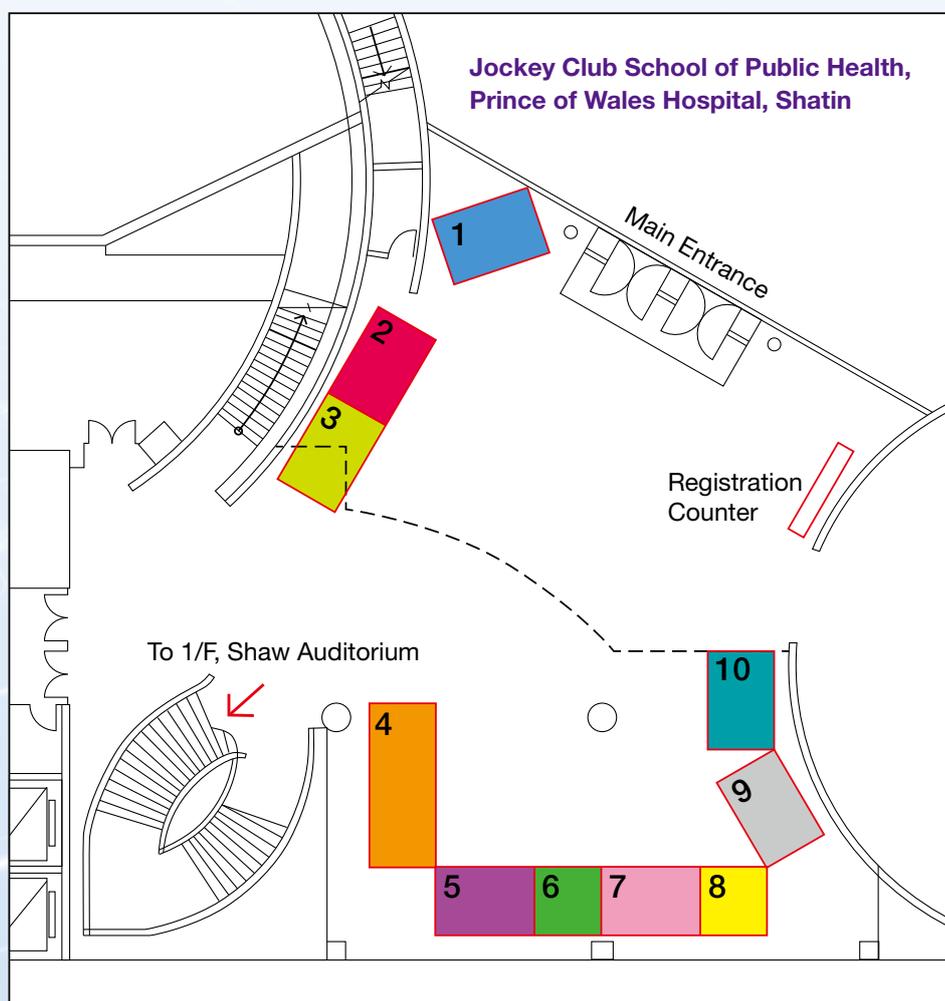
The Occupational Therapy Department also developed programs for a 40-inch high definition touch screen display unit for the cognitively impaired patients. The unit can recognise more than 50 simultaneous touch points which allow several patients to use the device together interactively for cognitive training.

10. Housing Society Elderly Resources Centre



Housing Society Elderly Resources Centre will demonstrate a new computerized cognitive assessment tool, which is jointly developed by Hong Kong Housing Society, The Hong Kong Polytechnic University, and The Chinese University of Hong Kong. This tool facilitates early detection of cognitive impairment of elders living in the community, and help to make recommendations for these elders to achieve Ageing-In-Place.

Exhibition



- 1. Senior Citizen Home Safety Association
- 2. Hong Kong Research Institute of Textiles and Apparel
- 3. Hong Kong Applied Science and Technology Research Institute
- 4. The Chinese University of Hong Kong and Shenzhen Institutes of Advanced Technology
- 5. CADENZA: A Jockey Club Initiative for Seniors
- 6. Jockey Club Centre for Positive Ageing
- 7. KineLabs, The Hong Kong Polytechnic University
- 8. Institute of Active Ageing, The Hong Kong Polytechnic University
- 9. Occupational Therapy Department, Shatin Hospital
- 10. Housing Society Elderly Resources Centre



CADENZA Symposium 2013 Organising Committee

Professor Jean Woo	Project Director, CADENZA
Professor Alfred Chan	Chairman, Elderly Commission Director, Asia Pacific Institute of Ageing Studies, Lingnan University
Professor Cees De Bont	Dean of School of Design & Chair Professor of Industrial Design, The Hong Kong Polytechnic University
Dr Terry Lum	Director of Sau Po Centre on Ageing, The University of Hong Kong
Mrs Teresa Tsien	Director of Institute of Active Ageing, The Hong Kong Polytechnic University
Mr Ivan Ho	Senior Engineer, Innovation and Technology Commission
Dr Cheung Moon Wah	General Manager (Elderly Service), Hong Kong Housing Society
Ms Imelda Chan	Executive Manager, Charities, The Hong Kong Jockey Club

