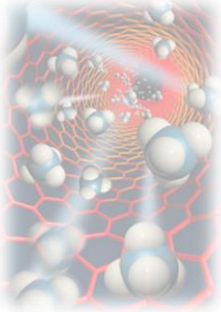
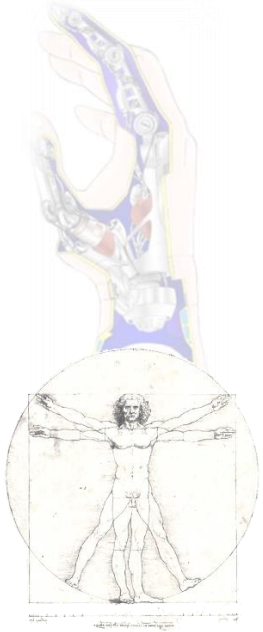


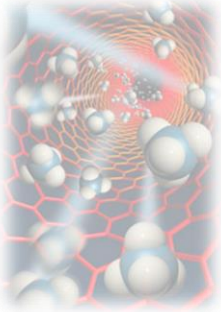
Gerontechnology:
solution to successful ageing?

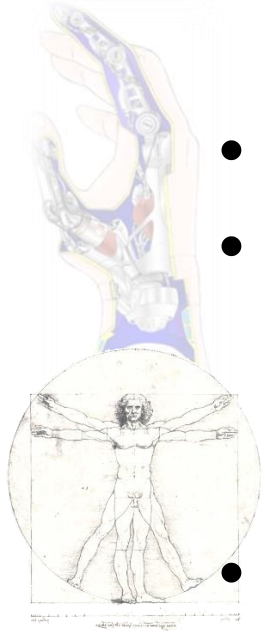


Ir Eric Tam, PhD
Department of Biomedical Engineering
Jockey Club Rehabilitation Engineering Centre & Clinic
Jockey Club Smart Ageing Hub
&
Institute of Active Aging
The Hong Kong Polytechnic University

CPCE Health Conference 2020

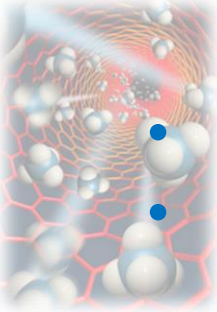
Gerontechnology



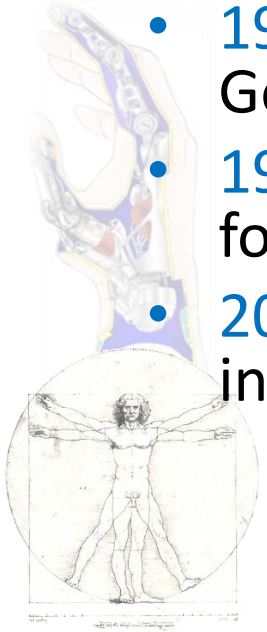


- Interdisciplinary academic and professional field
  - Gerontology
  - Technology
- Use technology to study ageing
- Use technology to assisting older adults in meeting the domains of *housing, communication, health, safety, comfort, mobility, and leisure and work*
- Use technology to achieve successful ageing

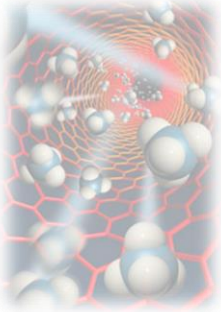
Birth of Gerontechnology

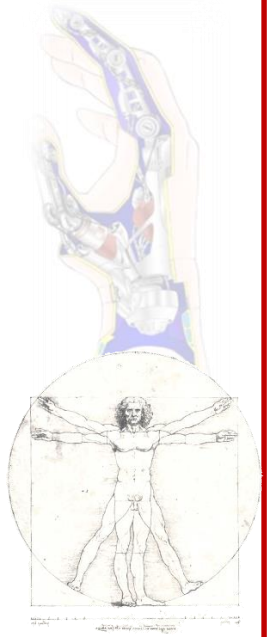


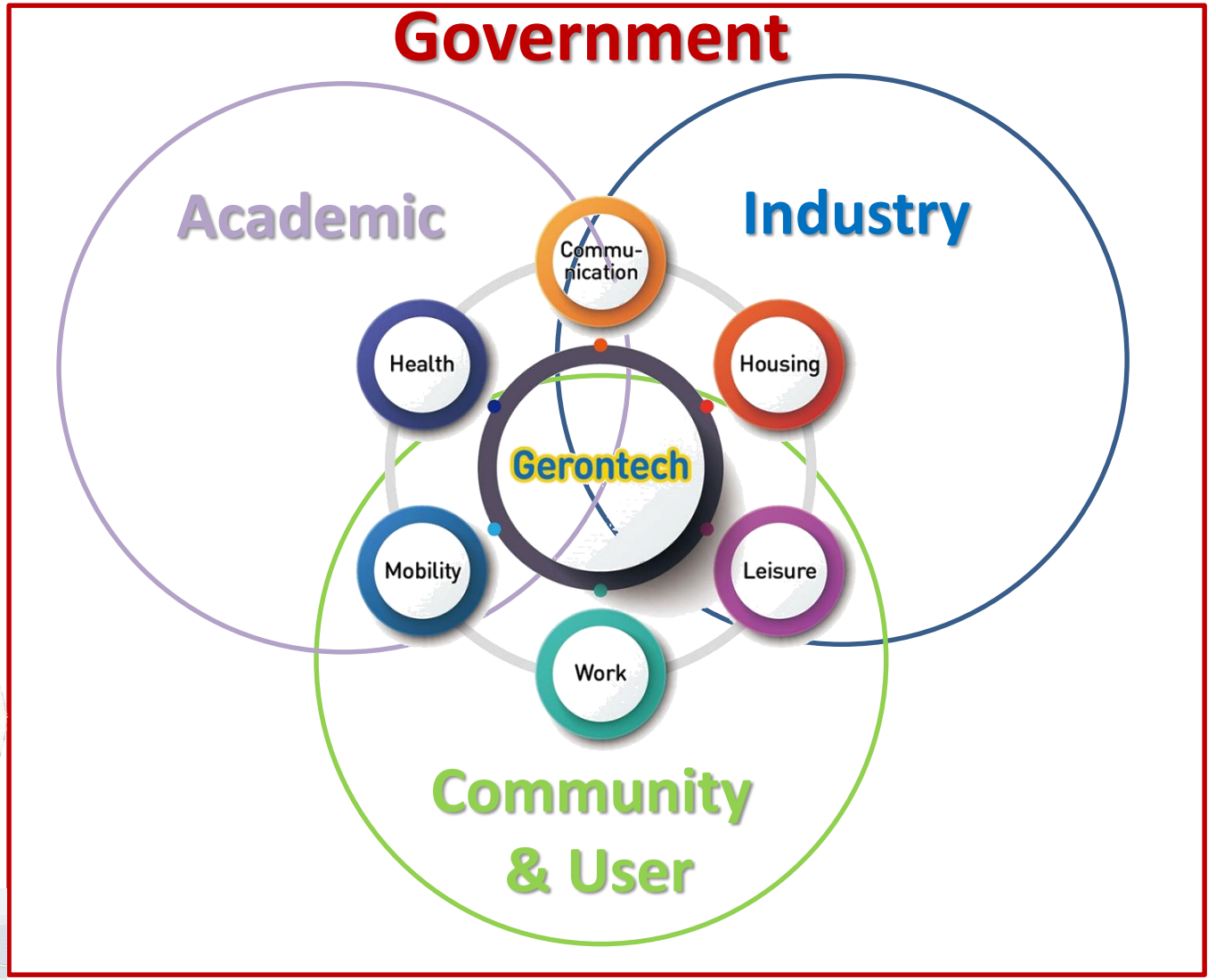
- 1980 Eindhoven University of Technology Netherlands.
- 1991 first appearances in the Proceedings of the First International Conference on Technology and Aging
- 1996 adopted at Second International Conference on Gerontechnology
- 1997 the International Society for Gerontechnology was founded
- 2005 PolyU: Institute of Active Ageing (2009); BSc(Hons) in Apply Ageing Studies (2013)



Current Situation?

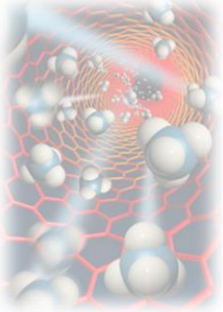


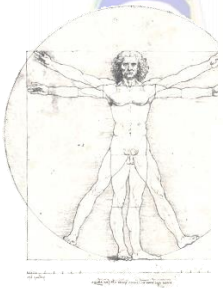




THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學
DEPARTMENT OF BIOMEDICAL ENGINEERING 生物醫學工程學系
JCREClinic
賽馬會智齡匯 JOCKEY CLUB SMART AGEING HUB
Institute of Active Ageing

Gernotech Market?





Health

VRHealth, BEYONDVERBAL, Trusty.care, SENSELY

Fall Detection

.VONE, activeprotective, Nymbl

vital signs tracking

Happitech, AliveCor, EarlySense, CU

Medication Management

Medisafe, fellow, MedMinder, AdhereTech, Mango Health, HERO, Catalia Health, pillo, Pill Pack

PERS

PHILIPS Lifeline, Life Alert, MedicalAlert, FallCall, Alert, SmartLife Care, focuscura

Telehealth

Call9, dispatch, MDLIVE, speakset, TELADOC

Social & Communication

intuition robotics, No Isolation, loop, greatcall, UNIPER, teleCalm, Nesterly, STORYUP, INDEPENDA, familink, silvernest, Stitch, Marvee, GeriJoy, Cutii, doro, grandPad, Kraydel

Independence

Transportation

SilverRide, papa, GO GO GRANDPARENT

ADL

verily, STEADIWEAR

Finance

PensionBee, tomorrow, Renew, True Link, Silver Bills, EVERSAFE

Sensory Aids

TuneFork, Audicus, NuEyes, nuance, ORCAM

Mobility Aids

ello, WHILL, RLS, iSTand, nino, movinglife

Wellness

Smart home

vayyar, CarePredict, TruSense, leeo, caru, carealert, sensara, CONNECT, billy, alcove, Zanthion, Domaly's, CUIDA, Canary, Sofihub, HIVE, essence, howz, DOMO SAFETY

Wearables

somatix, se/sm/c, biobeat, careband, WELT, UnaliWear, Reemo, kytera, mynotifi

For Senior Living Communities

soundmind, caremerge, LifeLoop, touchtown, oneday, nourish, cubigo, grandCARE, RENDEVER, It's Never 2 Late, LUNA LIGHTS

Caregiving

Livpact, envoy, cariloop, carely, OUTPATIENT, birdie, roobrik, REVERCARE, TCare, torchlight, Clever.Care, LIFEPOD, Wellthy, CareAcademy

For Healthcare Providers

PointClickCare, CareAngel, kaizen HEALTH, aiva, Janus Choice

End Of Life Planning

CAKE, everplans, Farewill, VYNCA

Cognitive Care

SingFit, menti, CogniFit, BRAIN U, RetroBrain, MyndYou, WINTERLIGHT, BrainCheck, Prompt, RemindMe care, greymatters, paro, brainHQ, Virtue Health, SAVONIX, Neurotrack, 2gether

For Home Care Agencies

AlayaCare, ONCARE, CareZapp, SENIORLINK, ClearCare

Home Care

CareLinx, CareSwitch, HOMETEAM, honor, The Helper Bees, SuperCarers, Cera

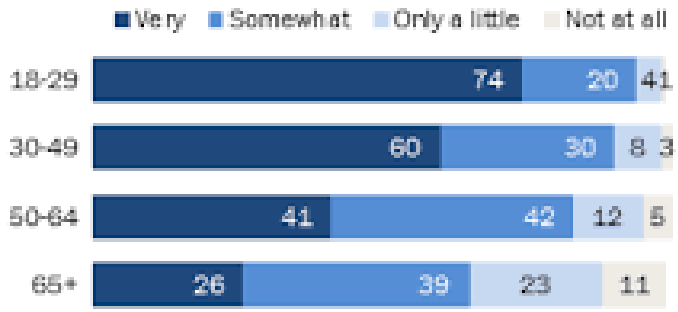
Legacy

miigen, Storii

2019 Gerontechnology Market Landscape (TheGerontechnplogist.com)

Seniors are less confident when using electronic devices

% of U.S. internet users who say they feel ____ confident when using computers, smartphones or other electronics to do the things they need to do online, by age

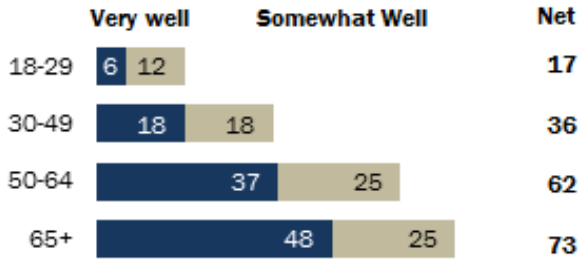


Source: Survey conducted Oct. 13- Nov. 15, 2015.
"Tech Adoption Climbs Among Older Adults"

PEW RESEARCH CENTER

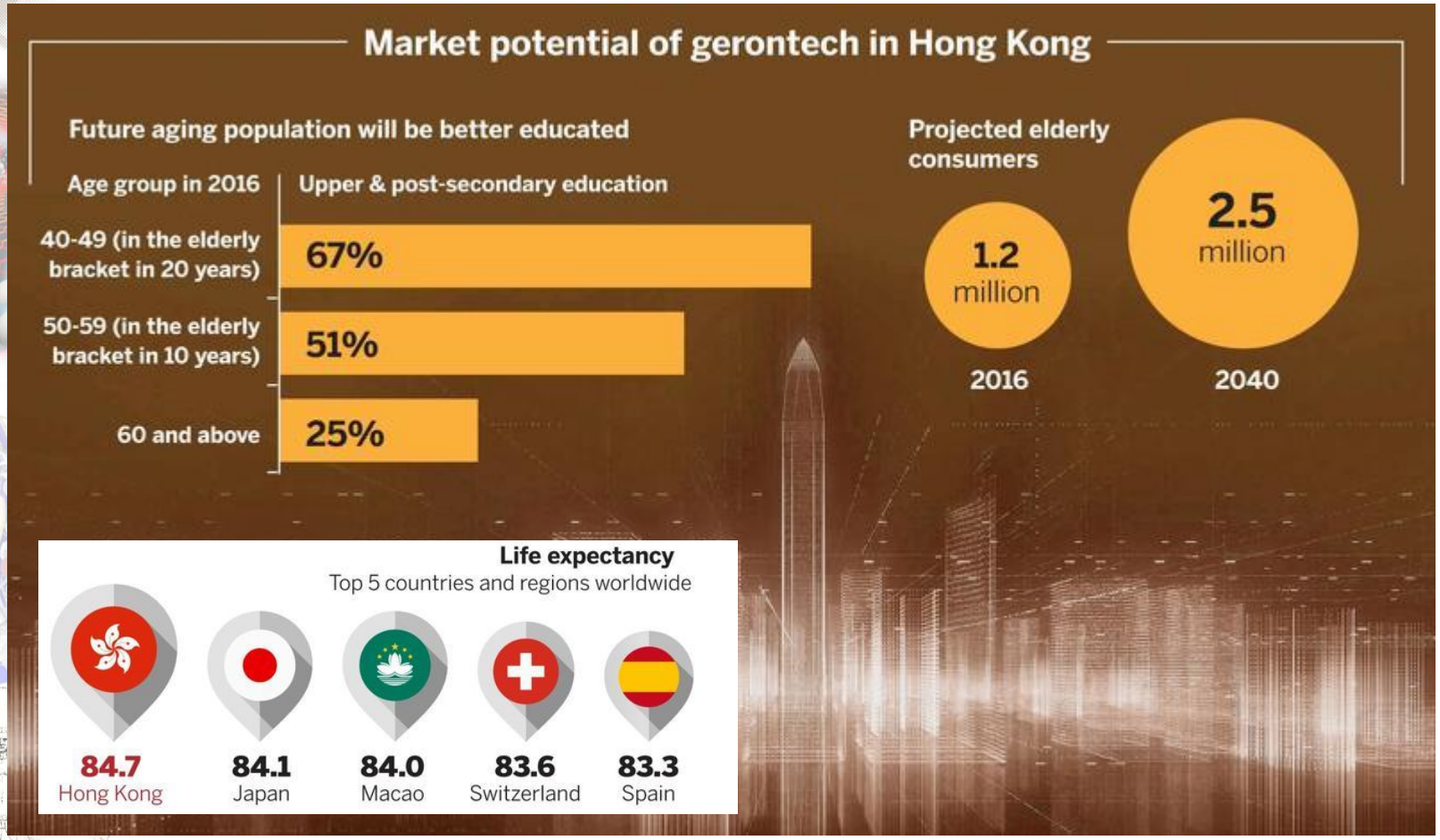
Most seniors say they need help using new electronic devices

% of U.S. adults who say the statement, 'When I get a new electronic device, I usually need someone else to set it up or show me how to use it,' describes them very or somewhat well, by age



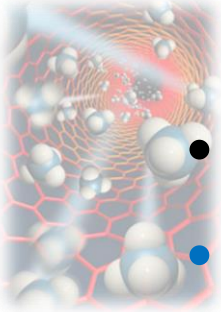
Note: NET category calculated prior to rounding.
Source: Survey conducted Oct. 13- Nov. 15, 2015.
"Tech Adoption Climbs Among Older Adults"

PEW RESEARCH CENTER

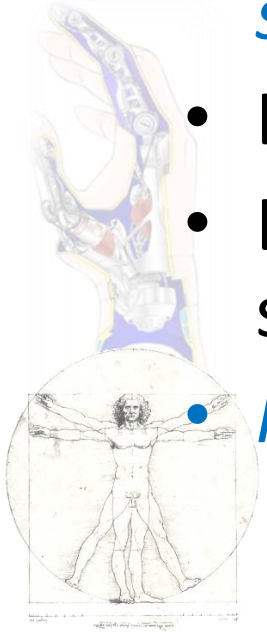


https://www.chinadailyhk.com/articles/153/253/42/1577326161206.html

What are the challenges?



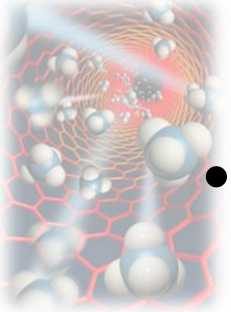
- Technologies *too expensive* and *difficult to use*
- Needs of older adults *too complex* and *too specific*
- Lack of *understanding* of the users' needs
- Lack of *"true" collaboration* among stakeholders
- *Moving targets* … others



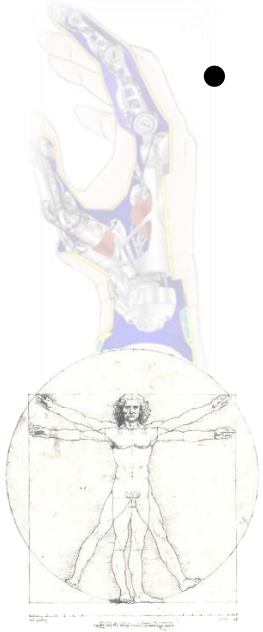
Challenges faced

- vulnerability, loneliness, boredom and isolation

Elderly needs

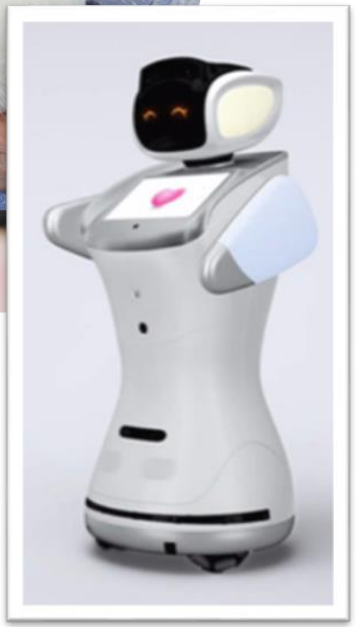


- Medical needs
  - chronic diseases
- Emotional needs
  - security (especially for those living alone)
  - emotional connections with family, friends and the community
  - ability to participate in leisure activities.

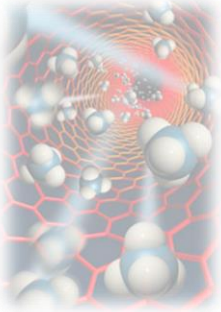


Promising Areas

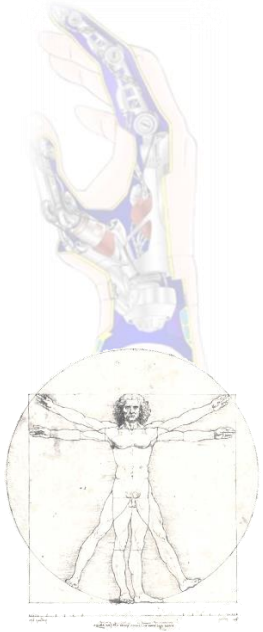
- Smart Homes
- Robotics



Promising Areas



- Big Data
- Living Lab



PLATFORM

Jockey Club Smart Ageing Hub

/ PROMOTE
Gerontechnology

- Products
- Devices
- Solutions

/ CONNECT
People

- Elderly
- Caregiver
- Scholars
- Professionals
- Government officials

/ BUILD
Network

- Demand & supply
- Locally & globally

Exhibition

Promoting gerontech devices to the public

Guided Tour

Exchange ideas

with the professionals & public

Programs

Learning Courses for Elderly

to promote smart ageing

https://www.polyu.edu.hk/Ageing/en/index.php

THE HONG KONG POLYTECHNIC UNIVERSITY
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JCREClinic

賽馬會智齡匯
JOCKEY CLUB SMART AGEING HUB

Institute of Active Ageing

SMART AMBASSADOR

Voluntary Work

Assistant

@Guided Tour

To support the demonstrations/ trials

Tour Guide

@Guided Tour

To introduce the concept of that particular area

Demonstrator

@Guided Tour

To introduce products & devices

Presenter

@Guided Tour

To introduce the products & devices

Facilitator

@Guided Tour

To enrich visitors' experience

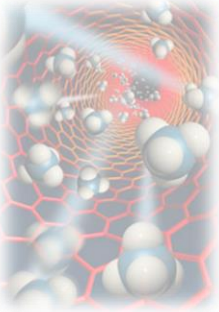
Instructor

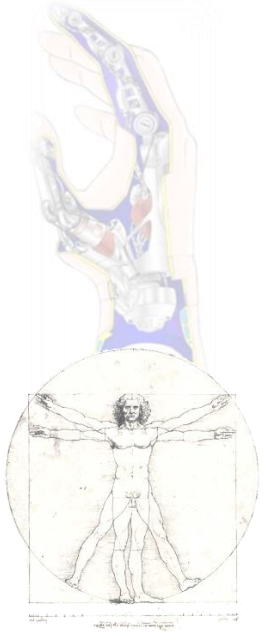
@Guided Tour

To provide instructions on the usage of items

Elderly Peer
@Guided Tour
To share useful information with elderly visitors

Jockey Club Smart Ageing Hub





Fu Hong

扶康會 Fu Hong Society

JC Center for Positive Aging

Haven of Hope

基督教靈實協會 HAVEN OF HOPE CHRISTIAN SERVICE

PolyU

Jockey Club Rehabilitation Engineering Center

NGO

...

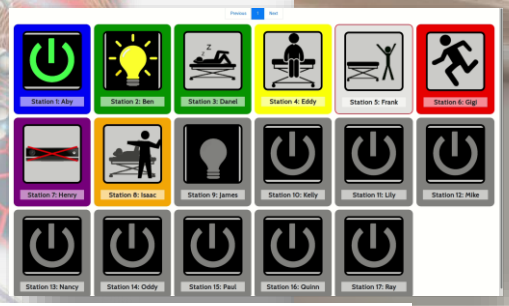
Yan Chai

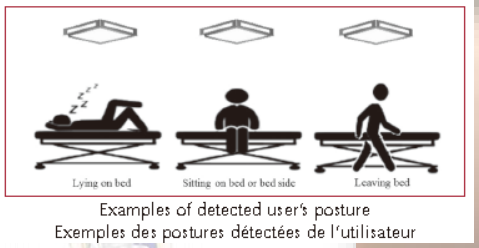
仁濟醫院 Yan Chai Hospital

NGO

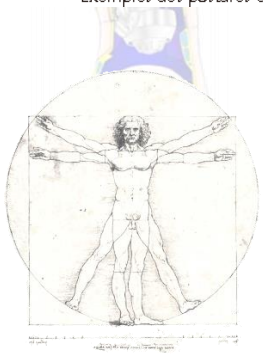
...

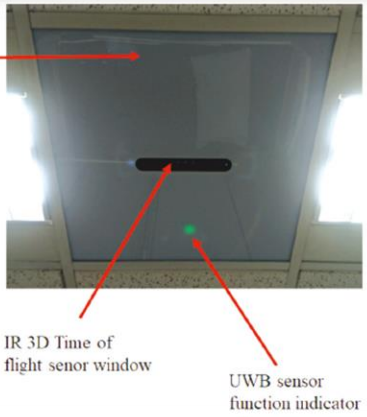
Gerontechnology Development - eNightLog





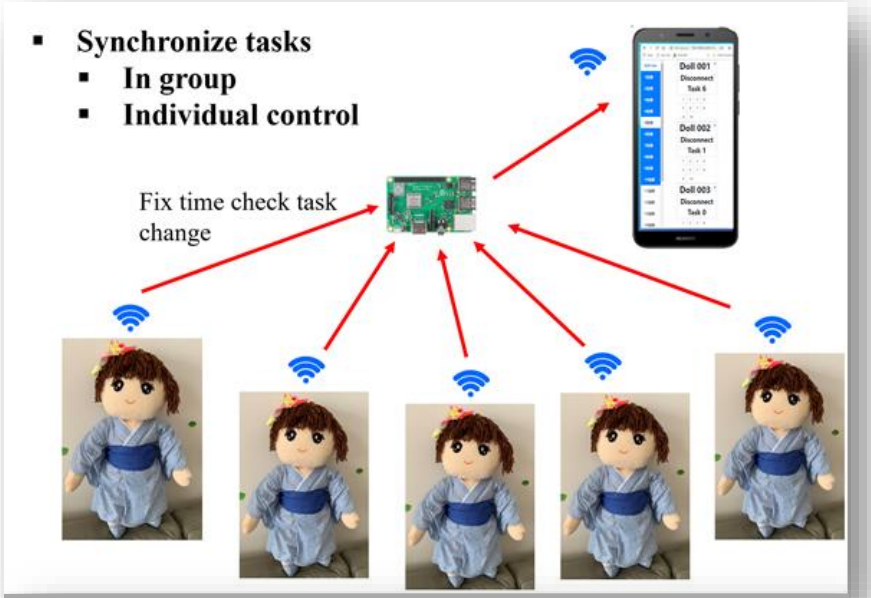
Examples of detected user's posture
Exemples des postures détectées de l'utilisateur

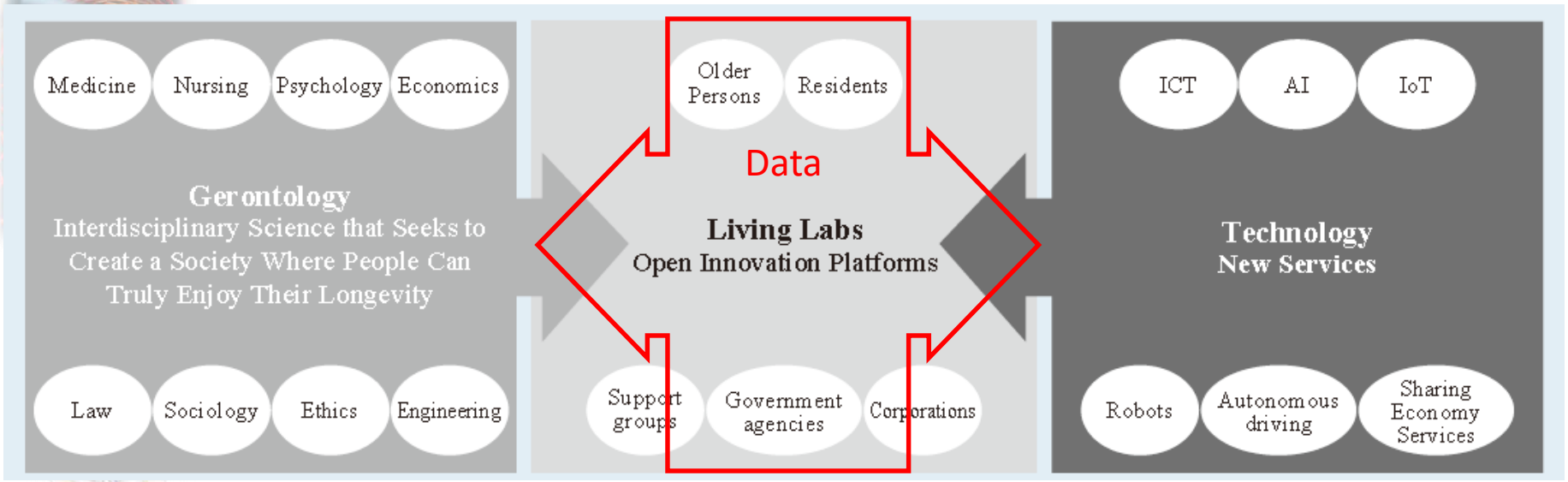


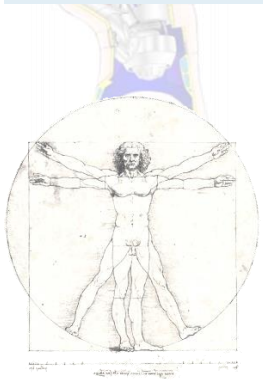


Gerontechnology Development – Interactive Doll

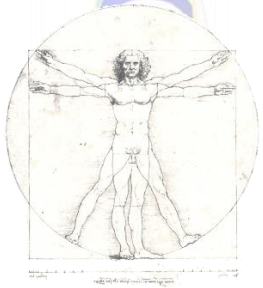
- Synchronize tasks
  - In group
  - Individual control




Medicine
Nursing
Psychology
Economics
Gerontology
Interdisciplinary Science that Seeks to Create a Society Where People Can Truly Enjoy Their Longevity
Law
Sociology
Ethics
Engineering
Older Persons
Residents
Data
Living Labs
Open Innovation Platforms
Support groups
Government agencies
Corporations
ICT
AI
IoT
Technology
New Services
Robots
Autonomous driving
Sharing Economy Services



Successful Ageing



Thank You

Contact: eric.tam@polyu.edu.hk

Department of Biomedical Engineering , Faculty of Engineering

Jockey Club Rehabilitation Engineering Centre and Clinic

Jockey Club Smart Ageing Hub

Institute of Active Ageing, Faculty of Health and Social Sciences

The Hong Kong Polytechnic University