Co-organisers:

The Hong Kong Polytechnic University 香港理工大學

康復治療科學系 Department of Rehabilitation Sciences

HK Occupational Therapy Association 香港職業治療學會

iCREATe ASIA

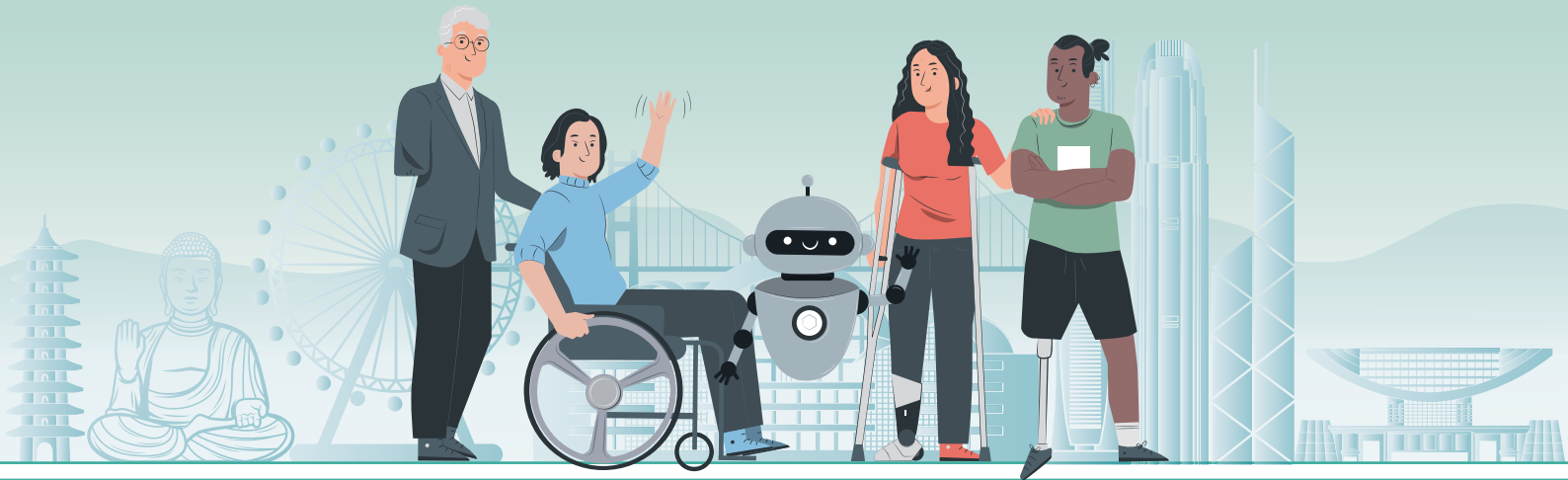
Program Book

15th i-CREATe 2022 HONG KONG

The 15th International Convention on Rehabilitation Engineering and Assistive Technology

Enabling All with Assistive Technology

26th - 28th August 2022



Opening Message

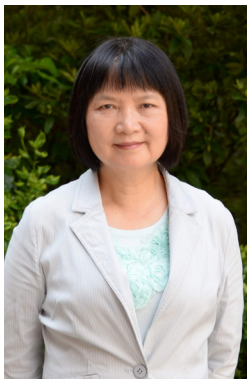
My warmest welcome to all the participants of the 15th International Convention on Rehabilitation Engineering and Assistive Technology (i-CREATe 2022)! On behalf of the Department of Rehabilitation Sciences of The Hong Kong Polytechnic University (RS of PolyU), I would like to express my pleasure and honour at the good news that the i-CREATe conference is to be held in Hong Kong for the first time since its inauguration in 2007. I am all the more delighted that PolyU is one of the co-organisers and will host the conference as one of the anniversary events to celebrate its 85th birthday!

The Global Student Innovation Challenge (gSIC), an iconic annual event held at i-CREATe, provides a platform for talented students from all over the world to compete with one another in developing innovative devices or solutions to improve the quality of living of elderly people and people with disabilities. It also provides students with the opportunity to work with clients and clinicians in realising their creative ideas. For the past few years, RS students have actively participated in gSIC and their creative prototypes have won Gold, Silver and Bronze awards in the contest every year since 2014, demonstrating their talents and skills to design and implement assistive technology solutions to address the issues faced by the needy and their caregivers. I am contented with their ability to apply what they have learned in the classroom to real-world settings and to help improve the quality of professional rehabilitation practice. I also feel proud of their commitment to helping those in need in society. The gSIC will be held on 26 August 2022 at i-CREATe, and I look forward to the active engagement of RS students and their strong, fruitful competition with other students in Hong Kong and from across the globe.

Although i-CREATe 2022 will be run in a hybrid mode due to the COVID-19 pandemic, the richness of the programme is maintained with keynote speeches, plenary sessions, free paper presentations and technical tours, in addition to the full-day gSIC contest. We are grateful for the generous support from a number of supporting organisations, including academic units of universities, Hospital Authority, professional bodies, and non-governmental organisations. We hope to make the best of their support so as to maximise the impact of the conference.

Prof. Hector Tsang
Cally Kwong Mei Wan Professor in Psychosocial Health,
Chair Professor of Rehabilitation Sciences and Head,
Department of Rehabilitation Sciences,
The Hong Kong Polytechnic University

Opening Message



The Hong Kong Occupational Therapy Association would like to extend our warm welcome to you, professionals and students from the fields of occupational therapy, engineering, rehabilitation and other specialties from China, Thailand, Singapore, Taiwan, Hong Kong and other countries to the Global Student Innovation Challenge and i-CREATe 2022. Theme of the conference is “Enabling All with Assistive Technology”.

Due to the COVID-19 pandemic, the conference has to be organized in a hybrid mode. However, we are grateful that the Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand and Dr Chapal Khasnabis from World health Organization had kindly recorded a speech for the opening ceremony to support the conference. We are also glad to have so many overseas and local experts in the field to share with us the most updated development in Assistive Technology.

Through CREATe Asia, we all shared the vision of improve access, contribution and participation of all through Assistive Technology. In this conference, we are connected through Technology! Hong Kong is a small city but we hope we can introduce our rich culture and advancement in technology to you face to face in the future.

We look forward to meeting you in The Hong Kong Polytechnic University and the virtual platform on 26 to 28 August 2022!

Ms Stella Cheng,
Chairperson & WFOT Delegate,
Hong Kong Occupational Therapy Association

Opening Message

On behalf of the Organising Committee, it is my honour and pleasure to invite you to attend the 15th International Convention on Rehabilitation Engineering and Assistive Technology (i-CREATe) 2022, by Department of Rehabilitation Sciences, The Hong Kong Polytechnic University in co-organising with the Hong Kong Occupational Therapy Association, in The Hong Kong Polytechnic University, Hong Kong, August 26 to 28, 2022. The conference is a highlight of the Create Asia Alliance every year in different Asian countries/ regions since it had been firstly held in Singapore in 2007.

Although assistive technology (AT) is not a new area in rehabilitation, it emerges as a new development area again with the recent advancement of internet of things (IoT), smart technology (AI), use of smart phones and wearable devices, artificial intelligence, and rehabilitation robots. The theme of the Conference 'Enabling all with assistive technology' is tended to inspire knowledge exchange and thoughtful stimulating discussion in the adoption of universal design concept that makes environments, products, and communication accessible by the widest possible array of users based on their abilities. Hong Kong and other Asian countries face similar challenges of rapid ageing, hence, home and intuitional ageing care and rehabilitation for chronic diseases are of burning needs. To meet these needs in the population, we need everyday design of environments and products for all users regardless of ability, with or without disabilities, as well as assisting the care-in-place at homes or institutions for the activities of daily living in older people with frailty or degenerative diseases such as dementia. The Conference will be in the form of plenary lectures, free paper presentations, international symposium on aging. The suggested sub-themes of the conference include application of AI, robotics on AT, and their related clinical applications.

The Global Student Innovation Challenge (gSIC) has become an annual icon activity in i-CREATe for the past couples of years. We sincerely invite and welcome students from the healthcare, engineering and design disciplines in Hong Kong and other countries/regions to enroll and join us together in both the design and technology categories in the competition.

I would like to send special thanks to the many individuals that have dedicated their time to ensuring the success of the Conference. Although the conference will be run in hybrid mode because of the COVID-19 pandemic in 2022, I hope this event, which aims to promote exchange in scientific knowledge and clinical experience as well as contacts between scholars, experts, researchers, clinicians, colleagues, and students in rehabilitation and gerontology, can still provide you fruitful ideas for the state-of-the-art development and research ideas in AT and rehabilitation engineering. We hope you appreciate our programme, field visits and social events within the metropolitan venue. Finally, the Organising Committee looks forward to meeting you in the beautiful city of Hong Kong if imposed travel and social restriction will be relaxed.

Prof. Kenneth Fong
Co-chairman
Organising Committee, i-CREATe 2022

Professor
Department of Rehabilitation Sciences
The Hong Kong Polytechnic University

Opening Message

On behalf of the CREATe Asia, Hong Kong Occupational Therapy Association (HKOTA) and The Hong Kong Polytechnic University (PolyU), we welcome delegates to Hong Kong for i-CREATe 2022, the 15th International Convention on Rehabilitation Engineering and Assistive Technology.

With more than two years of pandemic, we believe that all of us long for meeting friends face to face again. We are not sure whether this could be achieved in the coming i-CREATe from 26 to 28 August 2022, so we plan to deliver the convention in a hybrid mode. If situation allows, delegates are welcome to come to Hong Kong in person, otherwise, they could also join in virtual.

The World Health Organization revealed that only 1 in 10 people in need have access to assistive products. This becomes a global concern and experts in the field join together in order to improve the situation. Asia-pacific region has the highest population in the World, so the need of improving the access to assistive products for those in need is high. The CREATe Asia is an alliance of agencies across Asia, interested in promoting the development, provision and use of assistive technologies across the Asia Pacific region. The i-CREATe is an annual event of CREATe Asia to provide a common platform to share the advances and development in assistive technology to promote the health of all people.

The theme of i-CREATe 2022 is “Enabling All with Assistive Technology”. We have invited renowned scholars to enlighten us on this important area. The conference continues to provide an international platform for sharing of updated knowledge, as well as for student innovation contest. The conference includes a range of keynote and plenary speeches, free paper presentations, workshops and technical visit.

The Global Student Innovation Challenge (gSIC) provides opportunities for students to apply their learning to solve the real problems of people with disabilities. Through active participation in the contest, students also understand more about the needs of these people. They could also learn from students of other countries to appreciate different cultures and talents. We always see very innovative prototypes in the previous contests. This year, the gSIC will be held virtually in order to keep the same standards in assessing all the teams. I am certain that young people have many innovative and valuable ideas that could help people in need.

The Hong Kong Occupational Therapy Association is one of the founding organizations of CREATe Asia. We are honoured to host the i-CREATe 2022 with the Department of Rehabilitation Sciences, The Hong Kong Polytechnic University. The HKPU is celebrating its 85th Anniversary this year and the HKOTA is preparing for its 45th Anniversary next year. We continue trying our best to contribute to the community through enabling all with assistive technology.

We welcome your presence in person in Hong Kong to share our joy. In case of situation that you are not available to come to Hong Kong, we hope you could join in virtual. Your participation, support, and feedback are important for making i-CREATe 2022 a significant and successful event.

Mr Simon Wong
Co-chairman
Organising Committee, i-CREATe 2022

Hong Kong Occupational Therapy Association

President
CREATe Asia

Organizing Committee and Sub-committees

Organising committee

1. Prof. Hector Tsang (Ex-officio,Cally Kwong Mei Wan Professor in Psychosocial Health, Chair Professor and Head, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
2. Prof. Kenneth Fong (Co-chairman, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
3. Mr Simon Wong (Co-chairman, Hong Kong Occupational Therapy Association)
4. Dr Sam Chan (Chairperson of Scientific committee, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
5. Ms Stella Cheng (Co-chairperson of gSIC committee, Chairperson of Finance committee & Chairperson, Hong Kong Occupational Therapy Association)
6. Mr Johnny Lam (Chairperson of Publicity committee, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
7. Mr Dino Lee (Co-chairperson of gSIC committee, Hong Kong Occupational Therapy Association)
8. Ms Lydia Yip (Hong Kong Occupational Therapy Association)
9. Ms Joann Yiu (Secretary, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)

Scientific committee

1. Dr Sam Chan (Chairperson, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
2. Dr Alice Chan (Hong Kong Occupational Therapy Association)
3. Mr Marko Chan (Hong Kong Occupational Therapy Association)
4. Dr Eugene Fu (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
5. Dr Christina Ma (Department of Biomedical Engineering, The Hong Kong Polytechnic University)
6. Ms Janette Tam (Hong Kong Occupational Therapy Association)
7. Dr YM Tang (Department of Industrial Systems Engineering, The Hong Kong Polytechnic University)
8. Dr Eric Teng (Department of Industrial Systems Engineering, The Hong Kong Polytechnic University)
9. Dr Joni Zhong (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
10. Mr Tom Tsoi (Secretary, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)

Publicity committee

1. Mr Johnny Lam (Chairperson, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
2. Mr Yat Ho (Hong Kong Occupational Therapy Association)
3. Ms Vera Lam (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
4. Mr Fergus Tse (Secretary, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)

Organizing Committee and Sub-committees

Global Student Innovation Challenge committee (gSIC)

1. Ms Stella Cheng (Co-chairperson, Hong Kong Occupational Therapy Association)
2. Mr Dino Lee (Co-chairperson, Hong Kong Occupational Therapy Association)
3. Ir Dr CC Cheung (Industrial Centre, The Hong Kong Polytechnic University)
4. Ms Afifah Har (Hong Kong Occupational Therapy Association)
5. Ms Bonnie Jim (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
6. Dr HC Lau (Department of Biomedical Engineering, The Hong Kong Polytechnic University)
7. Mr Matthew Lo (Hong Kong Occupational Therapy Association)
8. Dr Tulio Maximo (School of Design, The Hong Kong Polytechnic University)
9. Mr Heyson Ngai (Hong Kong Occupational Therapy Association)
10. Dr YM Tang (Department of Industrial Systems Engineering, The Hong Kong Polytechnic University)
11. Dr Eric Teng (Department of Industrial Systems Engineering, The Hong Kong Polytechnic University)
12. Ms Candy Lo (Secretary, Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)

Finance committee

1. Ms Stella Cheng (Chairperson, Hong Kong Occupational Therapy Association)
2. Ms Joyce Cheung (Hong Kong Occupational Therapy Association)
3. Dr Kino Lam (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)
4. Dr Wilson Tang (Department of Rehabilitation Sciences, The Hong Kong Polytechnic University)

Global Student Innovation Challenge (gSIC) Judges

Design Category

Chief Judge:

Dr Ta Chieh Jerry Hsu (Taiwan) - Director, Taiwan Rehabilitation Engineering and Assistive Technology Society (TREATS)

Judges:

1. Dr Chatchawarn Hansakunbuntheung (Thailand) - Researcher, Assistive Technology and Medical Devices Research Center (A-MED), National Science and Technology Development Agency (NSTDA)
2. Prof. Jawn Lim (Singapore) - Associate Professor, Singapore Institute of Technology
3. Mr Simon Wong (Hong Kong) - Principal Occupational Therapist, CUHK Medical Centre

Technology Category

Chief Judge:

Dr Kavin Karunratanakul (Thailand) - Assistive Technology and Medical Devices Research Center (A-MED), National Science and Technology Development Agency (NSTDA)

Judges:

1. Mr Alvin Tan (Singapore) - Head, Technology Catalyst, Independent Living and Caregiver Support Division, SG Enable
2. Prof. Tuling Zhu (China) - Consultant of the China Assistive Devices and Technology Centre for Persons with Disabilities, Member of ISO TCI73/SC2/WG12 to develop ISO9999
3. Dr Lawrence Poon (Hong Kong) - General Manager, Hong Kong Productivity Council

Conference Program at-a-glance

26 August 2022 Friday (Hong Kong Time)		
	gSIC (Design Category)	gSIC (Technology Category)
09:30-11:00	Session 1	
11:00-11:15	Break	
11:15-12:30	Session 2	
12:30-14:30	Lunch	
14:00-16:15	Session 3	

Conference Program at-a-glance

27 August 2022 Saturday (Hong Kong Time)		
09:00-10:00	Opening Ceremony	
10:00-10:45	**Keynote Speech 1** **Prof. Roger SMITH** The inaccessibility of assistive technology: Is this an issue and what do we do about it?	
10:45-11:15	**Break**	
11:15-12:00	**Keynote Speech 2** **Prof. Wei Tech ANG** Data-driven Markerless Moition Capture System for Clinical Applications	
12:00-13:00	**Lunch**	
13:00-13:45	**Keynote Speech 3** **Dr Olivier LAMBERCY** Neurorehabilitation robotics: technologies for assessment and therapy of hand function	
13:45-14:45	Plenary Session 1A *Robotics on Assistive Technology* **Prof. Raymond TONG** **Dr Winnie LEUNG** **Dr Wilton FOK**	Plenary Session 1B *Application of Artificial Intelligence* **Prof. Man-wai MAK** **Prof. Thomas CHOI** **Ir Dr ZHENG PAI**
14:45-15:15	**Break**	
15:15-16:15	Oral Presentation Session 1A	Oral Presentation Session 1B
16:15-17:15	Oral Presentation Session 2A	Oral Presentation Session 2B

Conference Program at-a-glance

28 August 2022 Sunday (Hong Kong Time)		
09:00-09:45	**Keynote Speech 4** **Prof. Alex MIHAILIDIS** Supporting our Future Selves Through AgeTech	
09:45-10:45	**Keynote Speech 5** **Prof. Hongliu YU** Artificial Intelligence Application in Rehabilitation Robotics	
10:45-11:15	**Break**	
11:15-12:15	Plenary Session 2A *Clinical Application of Assistive Technology* **Mr Schwinger WONG** **Mr Patrick SZE** **Mr Marko CHAN**	Plenary Session 2B *Innovation* **Dr Tulio MAXIMO** **Dr Joanne YIP** **Ms Grace CHAN**
12:15-13:30	**Lunch**	
1:30-14:15	**Keynote Speech 6** **Prof. Kenneth FONG** Translational research in Assistive Technology: From engineering to bedside	
14:15-15:15	Oral Presentation Session 3A	Oral Presentation Session 3B
15:15-15:45	**Break**	
15:45-17:15	Oral Presentation Session 4A	Oral Presentation Session 4B
17:15-17:45	Award Presentations & Closing Ceremony	

Keynote Speakers (in order of appearance)

27 August 2022 | Keynote Speech 1

Prof. Roger Smith

Professor
Occupational Therapy, Science & Technology
Department of Rehabilitation Sciences & Technology
College of Health Sciences

Director
Rehabilitation Research Design & Disability (R2D2) Center
University of Wisconsin-Milwaukee, USA

Topic: The inaccessibility of assistive technology: Is this an issue and what do we do about it?

Prof. Roger O. Smith is Professor in the Department of Occupational Sciences & Technology and Director of the Rehabilitation Research Design & Disability (R2D2) Center (http://www.r2d2.uwm.edu) at the University of Wisconsin-Milwaukee, USA, with a joint appointment in the Clinical & Translational Science Institute of Southeastern Wisconsin in the Medical College of Wisconsin. He is Fellow of Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) and the American Occupational Therapy Association.

Prof. Smith received his B.A. in the social sciences (Psychology and Communications) from Goshen College, Indiana, U.S., his masters degree in the health sciences (Occupational Therapy) from the University of Washington, and his Ph.D. in industrial engineering from the University of Wisconsin-Madison.

Prof. Smith has published and presented widely on accessibility, universal design, assistive technology, and outcome measurement. He has directed more than 35 grant projects supporting research, demonstration & training projects that have defined issues, created measures and devised new interventions related to disability and rehabilitation with a focus on assistive technology.

Prof. Smith serves on the Board of Directors of the Global Alliance of Assistive Technology Organizations. He was past President of RESNA and has served on several U.S. national research advisory boards.

27 August 2022 | Keynote Speech 2

Prof. Wei Tech Ang

Executive Director
Rehabilitation Research Institute of Singapore
Nanyang Technological University (NTU)

Topic: Data-driven Markerless Motion Capture System for Clinical Applications

Prof. ANG Wei Tech graduated with a PhD degree in Robotics from the Robotics Institute, Carnegie Mellon University, USA in 2004, and M.Eng. and B.Eng. degrees in Mechanical Engineering from Nanyang Technological University (NTU) in 1999 and 1997 respectively. He is currently an Associate Professor at the School of Mechanical & Aerospace Engineering, NTU, and concurrently as the Executive Director of the Rehabilitation Research Institute of Singapore, a joint collaboration by NTU, A*STAR and National Healthcare Group.

Prof. ANG's research focuses on robotics technology for biomedical applications, which include surgery, cell micromanipulation, rehabilitation and assistive technology. His work has been well funded, published and cited, and resulted in several inventions licensed to the industry and spin-off companies.

Keynote Speakers (in order of appearance)

27 August 2022 | Keynote Speech 3

Dr Olivier LAMBERCY

Senior Scientist
Director (ad interim)
Rehabilitation Engineering Lab
Institute of Robotics and Intelligent Systems
ETH Zurich

Topic: Neurorehabilitation robotics: technologies for assessment and therapy of hand functionfor Clinical Applications

Dr Olivier Lambercy is a Senior Scientist and the Director (ad-interim) of the Rehabilitation Engineering Laboratory at ETH Zurich. He studied Microengineering at the Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, where he received the MSc degree in 2005. He completed his PhD at the National University of Singapore (NUS) in 2009, in collaboration with Simon Fraser University (SFU), Canada and Imperial College London. Dr. Lambercy's research focuses on the development and use of technology to improve upper limb assessment and therapy after stroke. Since 2017, he serves as associate editor in the Journal of NeuroEngineering and Rehabilitation.

28 August 2022 | Keynote Speech 4

Prof. Alex MIHAILIDIS

Associate Vice-President – International Partnerships & Professor
University of Toronto

Scientific Director
AGE-WELL Network of Centres of Excellence

Topic: Supporting our Future Selves Through AgeTech

Prof. Mihailidis is the Associate Vice-President for International Partnerships at the University of Toronto, and the Scientific Director of the AGE-WELL Network of Centres of Excellence, which focuses on the development of new technologies and services for older adults. He is a Professor in the Department of Occupational Science and Occupational Therapy (U of T) and in Biomedical Engineering (U of T), with a cross appointment in the Department of Computer Science (U of T).

Prof. Mihailidis has been conducting research in the field of technology to support older adults for the past 17 years, having published over 200 journal papers, conference papers, and abstracts in this field. Prof. Mihailidis is also very active in the rehabilitation engineering profession, currently as the Past-President for RESNA (Rehabilitation Engineering and Assistive Technology Society of North America). He was also named a Fellow of RESNA in 2014, which is one of the highest honours within this field of research and practice, and a Fellow in the Canadian Academy of Health Science (CAHS) in 2021 for his contributions to the health and well-being of older Canadians.

Professor Mihailidis received a B.A.Sc. in Mechanical Engineering from University of Toronto in 1996, a M.A.Sc. in Biomedical Engineering in 1998 from the University of Toronto, and a PhD in Bioengineering (Rehabilitation Engineering) in 2002 from the University of Strathclyde (Glasgow, Scotland).

Keynote Speakers (in order of appearance)

28 August 2022 | Keynote Speech 5

Prof. Hongliu YU

Director
Institute of Rehabilitation Engineering and Technology
University of Shanghai for Science and Technology

Topic: Artificial Intelligence Application in Rehabilitation Robotics

He has been specialized in the research of rehabilitation engineering for 20 years and founded the first education program of rehabilitation engineering in China. He presided over more than 30 scientific research projects, published 6 academic books and more than 200 academic papers, obtained 150 patents and won 6 research awards. As the chief expert, he completed more than 10 consulting reports on assistive device technology and industry for central and local governments of China. As the general chair, he successfully organized the largest rehabilitation engineering conference i-CREATe 2018 and the first China Rehabilitation Robotics Conference(CRR2020), and founded the first rehabilitation engineering magazine of International Rehabilitation Engineering and Devices(IRED) in China. He won Shanghai Education Award in 2016, China Baosteel Excellent Teacher Award in 2019, Shanghai Model Worker in 2020 and other honorary awards.

28 August 2022 | Keynote Speech 6

Prof. Kenneth FONG

Professor
The Hong Kong Polytechnic University

Editor-in-Chief
Hong Kong Journal of Occupational Therapy (HKJOT)

Topic: Translational research in Assistive Technology: From engineering to bedside for Clinical Applications

Kenneth Fong is Professor in the Department of Rehabilitation Sciences, The Hong Kong Polytechnic University (PolyU), currently the coordinator of assistive technology laboratory in Department of Rehabilitation Sciences, management committee member of the Research Institute for Artificial Intelligence of Things (RIAIoT) in PolyU, chairman of the University Ethics Committee, programme leader of BSc(Hons) in Occupational Therapy, and Editor-in-Chief, Hong Kong Journal of Occupational Therapy. He has been awarded several times the teaching awards from the department and the Faculty of Health and Social Sciences. In the last 10 years, he has received many competitive public research grants as chief investigator, among them, the Research Impact Fund (RIF), General Research Fund (GRF), Hospital and Medical Research Fund (HMRF), Innovation and Technology Fund (ITF), etc. from the government. In the last couple of years, his undergraduate students also got many awards in design of assistive technology products at the Global Student Innovation Challenge (gSIC), iCREATe, in different countries.

Plenary speakers (in order of appearance)

27 August 2022 | Plenary Session 1A

Prof. Raymond TONG

Professor and Chairman
Department of Biomedical Engineering
The Chinese University of Hong Kong

Topic: Wearable Soft robotic hand for stroke rehabilitation

Prof. Raymond Kai-yu Tong is a Biomedical Engineer. He received his PhD in Bioengineering from the University of Strathclyde, Glasgow, UK in 1999. Prof. Tong is among the world's top 2% most-cited scientists in their main disciplines for career-long citation impact in 2020. His research interests include Rehabilitation Robotics (e.g. Hand of Hope), Brain-Computer Control Interface (BCI), Neural Engineering, Functional Electrical Stimulation(FES) and Cognitive Assessment Software. His research, innovation and service have been honoured with the "Global Ageing Influencers 2021" award at the 9th Asia Pacific Eldercare Innovation Awards Ceremony held by the Ageing Asia in Singapore, Awardee of the 2013 Ten Outstanding Young Persons (Hong Kong) 香港十大傑出青年 ; the Grand Prix Award(the highest honor) of the International Exhibition of Inventions of Geneva 2012; Winner Award(e-Health) (the highest honor) in the Asia Pacific ICT Award 2012; and HKIE innovation awards for young members(2008).

27 August 2022 | Plenary Session 1B

Prof. Man-Wai MAK

Professor and Interim Head
Department of Electronic and Information Engineering
The Hong Kong Polytechnic University

Topic: Spoken Language Biomarkers for Dementia Detection

Prof. Man-Wai MAK received a Ph.D. in electronic engineering from the University of Northumbria and joined the Department of Electronic and Information Engineering at The Hong Kong Polytechnic University in 1993. Currently, he is a Professor and Interim Head of the same department. Prof. Mak has authored over 200 articles in speaker recognition, machine learning, bioinformatics, and biomedical engineering. He also coauthored postgraduate textbooks "Biometric Authentication: A Machine Learning Approach," Prentice-Hall, 2005 and "Machine Learning for Speaker Recognition," Cambridge University Press, 2020. Prof. Mak has received three Faculty of Engineering Research Grant Achievement Awards and a Faculty Merit Award in Research and Scholarly Activities. He has served as a member of the IEEE Machine Learning for Signal Processing Technical Committee from 2005–2007 and as an associate editor of IEEE/ACM Transactions on Audio, Speech, and Language Processing. Prof. Mak is currently Associate Editor of the Journal of Signal Processing Systems and IEEE Biometrics Compendium. He also served as a Technical Committee member of international conferences, including ICASSP and Interspeech, and gave a tutorial on machine learning for speaker recognition in Interspeech'2016. Prof. Mak's research interests include speaker recognition, machine learning, bioinformatics, and biomedical engineering.

Plenary speakers (in order of appearance)

27 August 2022 | Plenary Session 1A

Dr Winnie LEUNG
Assistant Professor of Engineering Education
Division of Integrative Systems and Design
The Hong Kong University of Science and Technology

Topic: Emerging Technology in Assistive Robotics

Prof. Leung Suk Wai Winnie is a systems design engineer, educator and entrepreneur. As a faculty of the Division of Integrative Systems and Design (ISD) at HKUST, she leads both a year-long cornerstone project course, as well as entrepreneurship-focused experiential learning courses. Prof. Leung received her PhD in Electronic and Computer Engineering from The Hong Kong University of Science and Technology (HKUST) in 2010. In Canada, she earned her BASc in Systems Design Engineering from University of Waterloo in 2002 and MASc in Aerospace Engineering from University of Toronto Institute for Aerospace Studies in 2004. She has worked in the top universities in Hong Kong in both engineering and entrepreneurship disciplines. Prior to her academic career, Prof. Leung worked in the Canadian/ European aerospace industry as a control engineer designing the first version of the ExoMars Rover locomotive. She has also worked extensively in technology consulting (e.g. MDRobotics, IBM, Deloitte Consulting), equipping her with cross disciplinary vantage points. In 2010, she co-founded miniDSP, a HK-based pro-audio company which delivers digital audio solutions in application areas spanning conferencing to augmented reality. Her current research interests include robotics systems design for healthcare and education, and entrepreneurship education pedagogical innovation.

27 August 2022 | Plenary Session 1B

Prof. Thomas CHOI
Professor
Centre for Smart Health
School of Nursing
The Hong Kong Polytechnic University

Topic: Identification of lower-limb movement intention with BCI and machine learning

Prof. CHOI Kup-Sze (Thomas) has been engaging in interdisciplinary research crossing over computer science, medicine and healthcare for over two decades. He has conducted research in computer graphics, haptics and virtual reality, with a range of applications including soft-tissue biomechanics, collaborative surgical simulation, cataract surgery, hand rehabilitation, psychiatric patient education, hygiene education, infection control training, and clinical education. Thomas has increasingly focused on artificial intelligence and healthcare predictive analytics since more than ten years ago. He conducts research on machine learning algorithms and their applications in healthcare, e.g., prediction of elderly quality of life, dementia risk, post-surgery mortality and prostate cancer risk through data-driven approaches. The work has also been extended to the development of intelligent algorithms to identify human intentions using brain waves in brain computer interface applications. Thomas earned his Ph.D. degree in Computer Science and Engineering from the Chinese University of Hong Kong. He is currently a Professor with the Hong Kong Polytechnic University, and the Director of the Centre for Smart Health.

Plenary speakers (in order of appearance)

27 August 2022 | Plenary Session 1A

Dr WT Wilton FOK

Director
Sport Artificial Intelligent Laboratory
Department of Electrical and Electronic Engineering
The University of Hong Kong

Topic: Artificial Intelligence for Stroke Rehabilitation Exercise Monitoring and Analysis System

Dr Wilton Fok is the Director of the Sport Artificial Intelligent Lab and the Director of the e-Learning Technology Development Laboratory of the University of Hong Kong. His team focuses on R&D of AI technologies and applications, including the ITF funded project “Artificial Intelligence for Stroke Rehabilitation Exercise Monitoring and Analysis System” and “Artificial Intelligence for Swimmer Safety and Performance Analysis System” and “Smart Assessment by AI”. The AI Smart swimming project also awarded the HK Information and Communication Technology Award in 2021. Dr. Fok is a member of the Rehabilitation Advisory Committee, sub-committee on Access under the Labour and Welfare Bureau and the Transport Advisory Committee.

Dr Fok awarded a Bachelor in Engineering, a Master degree in Engineering and a Master degree in Environmental Management from the University of Hong Kong, a Master of Business Administration Degree from the University of Cambridge and a PhD degree from the Renmin University of China. He had also awarded the Best Teacher Award by the HKU Faculty of Engineering, the Faculty Knowledge Exchange Award and University Teaching Excellence Award.

27 August 2022 | Plenary Session 1B

Ir Dr Pai ZHENG

Assistant Professor
Wong Tit Shing Endowed Young Scholar in Smart Robotics
Department of Industrial and Systems Engineering

Topic: A vision-based approach for mutual cognitive human-robot collaboration

Ir Dr ZHENG Pai is currently an Assistant Professor, Wong Tit Shing Endowed Young Scholar in Smart Robotics, and Lab-in-Charge of Digitalized Service Laboratory, in the Department of Industrial and Systems Engineering, at The Hong Kong Polytechnic University. His research interest includes smart product-service systems, human-robot collaboration, and intelligent manufacturing systems. Dr Zheng is a CIRP Affiliate, Senior Member of IEEE and CMES, Member of ASME and HKIE, and serves as the Associate Editor of Journal of Intelligent Manufacturing and Journal of Cleaner Production, Editorial Board Member of the Journal of Manufacturing Systems and Advanced Engineering Informatics, and Guest Editor/Reviewer for several high impact international journals in the manufacturing and industrial engineering field.

Plenary speakers (in order of appearance)

28 August 2022 | Plenary Session 2A

Mr Schwinger WONG
Assistant Chief Executive
Evangelical Lutheran Church Social Service – Hong Kong

Topic: Smart Journey in Primary Healthcare Service

Mr Schwinger Wong Chi Kit was a registered occupational therapist and the first Chinese accredited trainer for Dementia Care Mapping in his early years of career. Being a front-line therapist and service development roles, he advocated holistic and seamless healthcare through the use of technology, exemplified by his award winning projects like “Brain Fitness Gym” (Grand Award at Asia Pacific ICT Alliance (APICTA) 2010 Awards), “eElderly” (Bronze Award at HK ICT Awards) and “Smart Use of ICT for Frail Elders” (Silver Award at Hong Kong ICT Awards 2013). When he devotes and shifts more efforts to NGO’s management, he champions telehealth platforms and technological advancement to improve efficiency and cost effectiveness. In his present capacity as the Assistant Chief Executive of Evangelical Lutheran Church Social Service – Hong Kong (ELCHK), Schwinger has been providing a strategic direction on ELCHK’s information technology development, pioneering technological solutions in primary healthcare development and community-based rehabilitation at Tuen Mun District Health Centre as well as spearheading innovative approaches in social housing.

With his diverse background in clinical services as well as proficiency in managing multidisciplinary and cross-sectoral projects, he has revolutionized traditional service delivery processes with person-centered focus, application of assistive technology and rehabilitation engineering.

28 August 2022 | Plenary Session 2B

Dr Tulio MAXIMO
Assistant Professor
School of Design
The Hong Kong Polytechnic University

Topic: Assistive Technology and Inclusive Design: learning from complementary approaches

Dr Tulio Maximo is an Assistant Professor at The Hong Kong Polytechnic University School of Design and a member of the Association for The Advancements of Assistive Technology in Europe and WHO Global Cooperation on Assistive Technology. Dr Maximo’s professional aim is to bridge people, institutions and knowledge to improve society collaboratively. His research interests surround intergenerational and inclusive design, mobility devices, sitting ergonomics, design-led social entrepreneurship, and co-designing healthcare and assistive technology services. At PolyU School of Design, Dr Maximo created the elective subject Design Meets Disabilities and is the subject coordinator of the Cooperative Project, the largest subject in the department, connecting 140 students to 14 external organizations to work on real briefings. His work had received several awards from institutions such as the Industrial Designers Society of America, and the Royal College of Arts. More recently, Dr Maximo’s collaborative design has received one of the most competitive design awards: the Red Dot Product Design Award 2022 with a furniture study system to improve the posture and the study conditions of children living in subdivided flats. The project received a 4.45m donation for the production and donation of 2000 furniture units for children in Hong Kong.

Plenary speakers (in order of appearance)

28 August 2022 | Plenary Session 2A

Mr Patrick SZE

Manager (Elderly Services)
Hong Kong Housing Society

Topic: User-centric approach in development of technologies for age-friendly living

Mr Patrick Sze is currently the manager of Hong Kong Housing Society Elderly Resources Centre. He is also a registered Occupational Therapist in Hong Kong. Mr Sze has almost 20 years of experience in the field of geriatrics and primary healthcare. He has been participating and in-charging of a wide variety of education, training and research programs related to fall prevention, dementia care, and age-friendly living. Over the past few years, Mr Sze has been leading his team to conduct projects and services including the establishment of the first Mind-Friendly Home Exploration Center in Hong Kong, co-creating the InnovAge Home show-flats with application of age-friendly designs and gerontechnology, developed Health Exploration Programs for community-dwelling elderly, ExplorAge programs for caregivers and students, and consultancy services in senior housing projects of Hong Kong Housing Society.

28 August 2022 | Plenary Session 2B

Dr Joanne YIP

Associate Dean and Associate Professor
School of Fashion and Textiles
The Hong Kong Polytechnic University

Topic: AI-assisted Personal Training Gear to Monitor and Enhance Exercise Performance

Dr Yip, Joanne graduated with a BSc (Hons) in Textile Technology (with first class Honors) from The Hong Kong Polytechnic University (PolyU) and obtained her PhD at the same university. Prior to joining the university, Joanne had worked in Rice University in the US as a visiting researcher to conduct instrumental experiments. She has published more than 100 referee and conference papers in Textile and Material Science Journals. She had also worked in the intimate apparel Industry and therefore particular familiarizes material knowledge, quality requirements and production techniques used in the market. Currently, Dr Yip is Associate Professor teaching intimate apparel and activewear courses in PolyU and her research interests include functional garments for scoliosis, new materials and technology, surface treatments on textiles, moulding or seamless techniques used in Intimate Apparel and Activewear.

Plenary speakers (in order of appearance)

28 August 2022 | Plenary Session 2A

Mr Marko CHAN

Senior Occupational Therapist
Community Rehabilitation Service Support Centre (CRSSC)

Topic: Application of brain computer interface (BCI) and human computer interaction (HCI) in clinical environment

Mr Marko Chan is a registered occupational therapist and certified sexuality educator. He obtained Master of Science in Health Care (Health Technology) in PolyU and Master of Science in Stroke and Clinical Neuroscience in Chinese University of Hong Kong. He is currently a PhD candidate in Biomedical Engineering at the Chinese University of Hong Kong. Mr Chan works at the Community Rehabilitation Services Support Center (CRSSC), leading an interdisciplinary team to provide advanced assistive technology services. His research interests are neuroengineering, neuropsychological rehabilitation of patients with acquired brain injury, and the use of virtual technologies in upper extremity and cognitive rehabilitation.

28 August 2022 | Plenary Session 2B

Ms Grace CHAN

Business Director
The Hong Kong Council of Social Service

Topic: The Promotion and Development of Gerontechnology in Hong Kong

Ms Grace Chan has worked in the social welfare arena for over 25 years. She is the Business Director of the Hong Kong Council of Social Service (HKCSS), and also serves as a member of Board of Directors and the International Vice President of the International Federation on Ageing.

Ms Chan was invited as a member of the Strategic Advisory Group for the WHO Global Network of Age-friendly Cities and Communities in 2013. She is a former member of the Elderly Commission, and also sits on some committees and boards in the statutory bodies of Hong Kong. Her areas of expertise include long-term care, age-friendly cities and communities, elderly participation, lifelong learning, and innovation and technology for ageing.

Ms Chan joined HKCSS in 2006 and established the team of Innovation and Technology for Ageing in 2017 taking the lead in the development of several innovative services, including Gerontechnology Platform, Jockey Club “age at home” Gerontech Education and Rental Service, and Stair Climbing Service, etc. In 2019, she was awarded as Ageing Asia Global Ageing Influencer, in honouring the outstanding achievements of the most influential leader impacting ageing in the Asia Pacific.

Global Student Innovation Challenge (gSIC) - Team list

Design Category	
Title of the Project / Device	**Team Members and Institution**
Clip It Up!	Leung Tsz Fung, Liu Long Yu, Siu Sum Yuet, Lei Wing Yi Department of Rehabilitation Sciences The Hong Kong Polytechnic University
Sightband	Thatchai Srimuninnimit, Boonthicha Saejia, Rodolfo Lian Paderon Department of Psychiatry Chulalongkorn University
Auto Shower	Hemaraaj So Amuthan, Law Wei Feng, Mohamed Harith Bin Joefendi, Bryan Koh Ren Kai Mechanical Engineering ITE College East
Peripheral - The Future of Walking Navigation and Tangible Interface	Chang Bo-Yen, Hu Chien-Yang Biomedical Engineering Taipei Medical University
Friendlitise	Poon Pak Hei, Lo Siu Shu, Li Wa, Leung Pocco, Lee Wai Ting Department of Rehabilitation Sciences The Hong Kong Polytechnic University
The Amazing Hearing Devices / Soundgood	Vittawat Sootawee, Palis Anambutr, Najaree Janjerdsak, Lalida Apiromdej, Pijak Arayawichanon Department of Biomedical Engineering Mahidol University
Sit and Walk Walker	Lim En En, Camelia Leng Ying Xin, Ms Joey Wong Jin Yi School of Engineering / Mechanical Technology ITE College Central
Putong	Kaichieh Hsueh, Yu-Chieh Sun Arts and Design National Taipei University of Education
Shoeasy	Yeung Ho Ying Daisy, Yau Ka Yi, Wong Man Ting, Chan Sin Tung, Szeto Man Ki Department of Rehabilitation Sciences The Hong Kong Polytechnic University

Global Student Innovation Challenge (gSIC) - Team list

Design Category	
Title of the Project / Device	**Team Members and Institution**
Sit to Stand	Nuruddin Yusoh, Ittiphun Iamkit, Satarapon Somjai, Chonthicha Phommachak, Hathaichanok Nurueang College of Biomedical Engineering Rangsit University
Swalloecare	Lin Zhong-Wei, Chen Yu-Ting Department of Arts And Design National Taipei University of Education
U-Reach	Ng Hang Yan Helen, Leung Yan Ki, Tsang Lai Lin, Tse Cheuk Yin Jasmine, Shum Pak Yin Department of Rehabilitation Sciences The Hong Kong Polytechnic University
Movere (New Design Power Wheelchair for Easy Transfer)	Tunrada Viriyasubudom, Supasin Sombundee, Kawin Sirichantakul Faculty of Engineering Thammasat University
Exo-Input System for Disabled and Older People In E-Sports	Ching Sum Yuet, Cheung Kin, Lam Ka Hing, Sit Ka Yee, Cheung Yiu Chuen Department of Biomedical Engineering The Hong Kong Polytechnic University
Hoi-Tach	Ho Ming Wai, Chan Wing Tung Shanda, Hung Yu Ting, Lau Ching Yin, Lee Ho Ching Department of Rehabilitation Sciences The Hong Kong Polytechnic University
Signal	Hui Justin Johnathan, Ip Chun Sing, Jeffrey, Chow Ka Ki Magic, Kong Tsz Kwan Kristy Department of Rehabilitation Sciences The Hong Kong Polytechnic University
Rehab Bar	Alexander Quah Zhi Wei, Claire Chia Hui Shi, Leow Xue Zi Junise, Willie Goh Jia Wei, Ramasamy S/O Subramaniam Engineering Singapore Institute of Technology

Global Student Innovation Challenge (gSIC) - Team list

Technology Category	
Title of the Project / Device	**Team Members and Institution**
The All-in-one AI-based Knee Osteoarthritis Management System	Chan Lok Chun Justin, Li Ho Hin Toby, Li Pik Kei Tiffanie, Keung Sum Yuet, Zhang Alex Yuning Department of Biomedical Engineering, Faculty of Engineering The Hong Kong Polytechnic University
Design and development of physical therapy upper limb device with symmetrical reflections mechanism.	Methasit Kiatchaipha, Thanyaporn Wongwatcharanon, Abul Kashem Tahmid Shahriar Thammasat University
Brain Power---Three-dimensional Upper Limb Intelligent Rehabilitation Robot	Haiyin Deng, Zhenming Huang, Zhaoying Li, Youze He, Jian Song College of Rehabilitation Medicine Fujian University of Traditional Chinese Medicine
Phychant -- Development of Physical Disability and Speech Difficulties Assistant	Hu Jiajun, Zhang Zhiyao School of Computing National University of Singapore
Dysarthria voice conversion (DVC 3.1)	Ying-Hsuan Chen, Wei-Zhong Zheng, Ruei-Ci Shen Department of Biomedical Engineering National Yang Ming Chiao Tung University
An Integrated Immersive Augmented Virtuality and Digital Twin Bicycle Simulator in the CAVE Virtual Reality (VR) System	Ngan Chi Fung, Ng Ka Chun Hadyn, Leong Sze Chit Candice, Kwok Ching Ping Terrence, Chan Hoi Sze, Celia Department of Industrial and Systems Engineering The Hong Kong Polytechnic University
DMIND: Detection and Monitoring Intelligence Network for Depression	Kittipoch Saengsai, Preedarat Watthangkul, Jetnipit Kulrativid, Posawat Maileung Chulalongkorn University
Intelligent Powered Hip Disarticulation Prosthesis	Huafu Luo, Yixi Chen, Meng Fan, Yi Tang Institute of Rehabilitation Engineering and Technology University of Shanghai for Science and Technology
Smart Therapeutic Pet Robot for Elderly with Dementia	Loo Si Hui, Mohammad Syahiran Bin Daud, Foong Shirley, Su Qing Huang Johnathan@Khant Zaw Nyunt, Teung Ler Yee School of Electrical and Electronics Engineering Singapore Polytechnic
Using deep learning-based pose estimation technology to develop a novel rehabilitation evaluation system	Yu-Pei Wang, Yi-Jung Chen Department of Computer, Chang Gung University
Design of A Low-Cost Robotic Hand for Amputees	Hao Tian Zhang, Tsz Tsun Sun, Pak To Cheung, Tsz Pang Yiu Department of Industrial and Systems Engineering The Hong Kong Polytechnic University
AOMI-BASED BCI SYSTEM FOR STROKE PATIENT'S UPPER EXTREMITY REHABILITATION	Nuttawat Rungsirisilp, Kanya Areeraksa, Premravee Teeravichayangoon, Rittichai Praiboon, Wisarut Anankamongkol Department of Biomedical Engineering, Faculty of Engineering Mahidol University

Global Student Innovation Challenge (gSIC) - Team list

Technology Category	
Title of the Project / Device	**Team Members and Institution**
A novel hybrid active-passive intelligent prosthetic knee	Linrong Li, Xiaoming Wang, Zhewen Zhang, Jie Sun, Liangdong Yang School of Health Science and Engineering University of Shanghai for Science and Technology
Finger Rehabilitation Exercise with Computer Vision	Kenny Hua Chye Huat, Muhammad Adib B Mohamed Amin, Yong Zhi Kang, Ho Heng Yi Mechanical Engineering School of Engineering ITE College Central
NIRSafe_A Rehabilitation Tool for Sarcopenia	Wu Chun-I, Chen Hsin-Chih, Huang Ting-Yun, Tung Cheng-Jui BME National Cheng Kung University
Real-Time Adjustable Kinesthetic And Haptic Glove For X-Reality	So Pak Hei, Wong Tsz Chung, Tam Yiu Chau, Chan Tin Chun, Wong Wai Chi Department of Biomedical Engineering Faculty of Engineering The Hong Kong Polytechnic University
JustSigns	Narapathra Morakrant, Chatchapon Sukitporn-Udom, Ploypapas Pianchoopat Computer engineering / EngineeringKing Mongkut's University of Technology Thonburi
License to Save	Caleb Peh Qixuan, Chew Guo You, Lim Wei Bin Mechatronics Engineering School of Engineering, College WestInstitute of Technical Education
The smart kettlebell flips your life/ A portable physical assessment and exercise training kit	Ling-Wei Yen, Qian-Yu Chen, Pei-Chun Lin School of Physical Therapy and Graduate Institute of Rehabilitation Science Chang Gung University
A smart motorized balance-perturbation system for evaluating and improving postural balance of older and/or disabled people	Ringo Tang-Long Zhu, Cheuk Ying Tong, Shuai Li, Queenie Tsung Kwan Shea, Shan Su Department of Biomedical Engineering Faculty of Engineering The Hong Kong Polytechnic University
PolyCARE	Feng Lin, Zhu Zixuan, Zhang Xinzhi, Cai Yangnuo, Alisher Myrgyyassov Industrial Centre The Hong Kong Polytechnic University
iSleep	Luk Suet Ching, Cheung Suen, Chau Ming Sha, Kwong Yat Ching Biomedical Engineering The Chinese University of Hong Kong
ElecTrolley	Leung Man To, Sham Hang Chi Helen, Leung Nga Sin Grace, So Ying Hei, Li Ling Department of Rehabilitation Sciences The Hong Kong Polytechnic University

Global Student Innovation Challenge (gSIC) - Awardee list

Technology Category	
Gold Award	Design and development of physical therapy upper limb device with symmetrical reflections mechanism (Thailand) Thammasat University
Silver Award	JustSigns (Thailand) Computer Engineering / Engineering, King Mongkut's University of Technology Thonburi
Bronze Award	Brain Power-Three-dimensional Upper Limb Intelligent Rehabilitation Robot (China) College of Rehabilitation Medicine, Fujian University of Traditional Chinese Medicine
Merit Award	License to Save (Singapore) School of Engineering (Mechatronics Engineering), ITE College West
Merit Award	Intelligent Powered Hip Disarticulation Prosthesis (China) Institute of Rehabilitation Engineering and Technology, University of Shanghai for Science and Technology
Merit Award	Aomi-Based Bci System for Stroke Patient's Upper Extremity Rehabilitation (Thailand) Department of Biomedical Engineering, Faculty of Engineering, Mahidol University
Merit Award	Dysarthria voice conversion (DVC 3.1) (Taiwan) Department of Biomedical Engineering, National Yang Ming Chiao Tung University
Best Video Presentation Award	Phychant - Development of Physical Disability and Speech Difficulties Assistant (Singapore) School of Computing, National University of Singapore
Best Poster Presentation Award	The All-in-one AI-based Knee Osteoarthritis Management System (Hong Kong SAR) Department of Biomedical Engineering, The Hong Kong Polytechnic University, Faculty of Engineering
Best Prototype Award	A novel hybrid active-passive intelligent prosthetic knee (China) School of Health Science and Engineering, University of Shanghai for Science and Technology
Best Usability Award	PolyCARE (Hong Kong SAR) Industrial Centre, The Hong Kong Polytechnic University

Global Student Innovation Challenge (gSIC) - Awardee list

Design Category	
Gold Award	Movere (New design power wheelchair for easy transfer) (Thailand) Mechanical Engineering Department, Faculty of Engineering, Thammasat University
Silver Award	Sit and Walk Walker (Singapore) School of Engineering (Mechanical Technology), ITE College Central
Bronze Award	Sit to Stand (Thailand) College of Biomedical Engineering, Rangsit University
Merit Award	U-Reach (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Merit Award	Signal (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Merit Award	Friendlitise (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Best Video Presentation Award	Clip It Up! (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Best Poster Presentation Award	Putong (Taiwan) Arts and Design, National Taipei University of Education
Best Prototype Award	SightBand (Thailand) Department of Psychiatry, Chulalongkorn University
Best Ergonomic Award	The Amazing Hearing Devices / SoundGood (Thailand) Department of Biomedical Engineering, Faculty of Engineering, Mahidol University

Best Onsite Exhibition (for local participants ONLY)	
Gold Award	ShoEasy (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Silver Award	ElecTrolley (Hong Kong SAR) Department of Rehabilitation Sciences, The Hong Kong Polytechnic University
Bronze Award	The All-in-one AI-based Knee Osteoarthritis Management System (Hong Kong SAR) Department of Biomedical Engineering, Faculty of Engineering, The Hong Kong Polytechnic University

Oral Presentations

27 August 2022

SESSION 1A	
APPLICATIONS OF ASSISTIVE TECHNOLOGY ON PHYSICAL REHABILITATION	
	Title and Author(s)
15:15-16:15	EVALUATION OF VIRTUAL REALITY TECHNOLOGY FOR REDUCING THE RISK OF FALLS AMONG OLDER PERSONS WITH MILD COGNITIVE IMPAIRMENT AND DEMENTIA IP, W. K.*
	A SYSTEMATIC REVIEW EXPLORING THE MECHANISMS OF TECHNOLOGY-MEDIATED DUAL-TASK TRAINING IN IMPROVING BALANCE AND LOWERING THE INCIDENCE OF FALLS IN OLDER ADULTS Khan, M. J., Fong, K. N. K., Wong, T., Winser, S. J.
	DEVELOPMENT OF AN INTELLIGENT IOT TOILET FALL DETECTION SENSOR: A DEPTH CAMERA APPROACH Chan, T.T.-C. BSc*, Mak, A.H.-Y. BEng, Zheng, Y.-P. PhD, Cheung, J.C.-W. PhD.
	EFFECTS OF VIRTUAL REALITY INTELLIGENT TREADMILL WALKING TRAINING ON BALANCE FUNCTION AND WALKING ABILITY IN PATIENTS WITH ALZHEIMER'S DISEASE Zhang, Y. S.*, Huang, L., Xiao, J. H., Wei, J. X., Bi, Z. T., Xu, J. W.

SESSION 1B	
CLINICAL APPLICATIONS OF VIRTUAL REALITY	
	Title and Author(s)
15:15-16:15	IMMEDIATE EFFECT OF VIRTUAL REALITY GAME ON SPATIAL WORKING MEMORY IN YOUNG ADULTS AND OLDER ADULTS Lai, C. Y. Y.*, Lai, H. Y., Man, D. W. K., Fong, K. N. K., Wong, S. L., Yee, B. K.
	DEVELOPMENT OF VIRTUAL REALITY GARDENING BASED ON THE CONCEPTS OF MULTISENSORY STIMULATION FOR OLDER PEOPLE WITH COGNITIVE IMPAIRMENT Lau, S. Y. J.*, Tang, Y. M., Fong, N. K. F.
	APPLICATION OF VIRTUAL REALITY FOR PERITONEAL DIALYSIS EXCHANGE LEARNING IN PATIENTS WITH END-STAGE RENAL DISEASE AND COGNITIVE IMPAIRMENT Lee, M. S.*, Fong, N. K., Mok, M. Y., Lam, M. K., Kung, Y., Chan, P. W., Ma, K. M., Lui, S. L., Kwan, P. Y., Chu, W. L., Hui, P. C., Yau, S. F., Kwan, W. L., Chan, Y. M., Chan, T. M.
	DEVELOPMENT OF A KINESTHETIC-FEEDBACK HAPTIC GLOVE FOR VIRTUAL REALITY So, B.P.-H.*, Wong, A. T.-C., Tam, A. Y.-C., Wong, D. W.-C., Cheung, J. C.-W.

Oral Presentations

27 August 2022

SESSION 2A	
APPLICATIONS OF ASSISTIVE TECHNOLOGY ON COGNITIVE/DEVELOPMENT REHABILITATION	
	Title and Author(s)
16:15-17:15	APPLICATION OF DIGITAL PLATFORM TO PROMOTE MENTAL WELLNESS IN ADOLESCENTS DURING COVID-19 Lai, C. Y. Y., Lau, A. H. M., Lam, A. M.*, Chan, Y. Y. H., Yip, W. H., Cheung, Y. N., Ho, B., Cheng, K. N., Yung, W. K.
	IDENTIFYING IMPORTANT FEATURES IN SCREENING INSTRUMENTS TO FACILITATE THE DIAGNOSIS OF AUTISTIC SPECTRUM DISORDERS Ho, C. L., Choi, K. S.*
	THE APPLICATION OF TECHNOLOGY TO IMPROVE COGNITION IN OLDER ADULTS Leung, C., Wong, K. C., So, W., Tse, Z., Li, D., Cao, Y.*, Shum, D.

SESSION 2B	
EMERGING AND INNOVATIVE ASSISTIVE TECHNOLOGY	
	Title and Author(s)
16:15-17:15	DEVELOPMENT OF A MARKERLESS MOTION CAPTURE (MMC) SYSTEM IN MOBILE DEVICE FOR MEASUREMENT OF RANGE OF MOTION (ROM) IN THE UPPER EXTREMITY Lam, W. T.*, Fong, K. N. K.
	RADAR SENSING TECHNOLOGY FOR EYEBALL MOVEMENT DETECTION: TOWARDS NON-CONTACT RAPID EYE MOVEMENT (REM) IDENTIFICATION Lai, D. K.-H., Tam, A. Y.-C., Wong, D. W.-C., Cheung, J. C.-W.*
	DESIGN AND FABRICATION OF TRANSPARENT, STRETCHABLE, AND CONDUCTIVE WEARABLE SENSORS FOR REHABILITATION APPLICATIONS Saka, S. O.*, Yeung, K. W., Tang, C. Y., Law, W. C.
	A NOVEL SMART WEARABLE SENSORIMOTOR TRAINING SYSTEM TO ASSIST/FACILITATE HOME-BASED DAILY REHABILITATION TRAINING OF STROKE SURVIVORS: A PILOT STUDY Li, K. J., Ma, Z. H.

Oral Presentations

28 August 2022

SESSION 3A	
APPLICATIONS OF ASSISTIVE TECHNOLOGY ON NEUROLOGICAL REHABILITATION	
	Title and Author(s)
14:15-15:15	APPLICATION OF COMBINED NEUROFEEDBACK (NFB) AND TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) IN STROKE COGNITIVE REHABILITATION Chan, K. L. *,Yu, K. P.*, Tong, K. Y. *
	A RANDOMISED CONTROLLED TRIAL IN APPLICATION OF MOTION SENSORS IN ACTIVITIES OF DAILY LIVING TRAINING PROGRAM ON FUNCTIONAL IMPROVEMENT OF STROKE PATIENTS Cheung, W. L.*, Lam, C. M., Cheung, T. Y.
	DEVELOPMENT OF FACIAL EXPRESSION RECOGNITION ALGORITHM TO ALLOW INDIVIDUALS WITH TETRAPLEGIA TO COMMUNICATION VIA SMART DEVICE Tsoi, K. M., Yu, K. P.*, Shum, M. H.
	DEPLOYMENT OF TECHNOLOGY-ASSISTED INTERVENTIONS IN ELDERLY CARE HOME FOR RESIDENTS WITH COGNITIVE IMPAIRMENT Chan, K. L.*,Yu, K. P. *, Tong, K. Y.*

SESSION 3B	
APPLICATION OF 3-D TECHNOLOGY ON CLINICAL PRACTICE	
	Title and Author(s)
14:15-15:15	APPLICATION OF 3D PRINTING TO ENABLE SAFE AND INDEPENDENT HOME HAEMODIALYSIS Yu, K. P., Chan, K. K.
	A 3D PRINTED ASSISTIVE DEVICE FOR MINIMIZING NEEDLE STICK INJURY (NSI) DURING INSULIN PEN INJECTION AT A HONG KONG PUBLIC HOSPITAL Lau, K. C. T.*, Yip, C. T. C., Wong, H. K., Chong, P. F. V., Lam, H. C.
	AN INNOVATIVE WAY OF CREATING ASSISTIVE DEVICES FOR PATIENTS WITH TETRAPLEGIA USING 3D PRINTING Wong, S. Y., Chan, P. S. A., Au, K. M. B.
	A FEASIBILITY STUDY OF SPLINTAGE BY 3D SCANNING AND PRINTING: PROCESS AND EVALUATION OF CURRENT 3D PRINTING MATERIAL Li, S., Mok, A. S. W.*, Wong, S., Sin, E. Y. Y., Lau, J. C. M., Wong, J. Y. K., Chan, S. C. C., Lau, B. W. M.

Oral Presentations

28 August 2022

SESSION 4A	
CLINICAL RESEARCH (REHABILITATIVE TRAINING)	
	Title and Author(s)
15:45 – 17:15	DOES TRAINING INVOLVING THE RHYTHMIC AUDITORY STIMULATION TECHNIQUE IMPROVE UPPER-LIMB MOVEMENTS IN PATIENTS WITH PARKINSON'S DISEASE? Fan, W.*, Wang, S. M., Fong, K.
	PRIMING EFFECTS ON RTMS WITH MOTOR TRAINING ON A HEMIPLEGIC UPPER LIMB IN PATIENTS WITH CHRONIC STROKE HAI, Y. K. E.* , FONG, N. K. K.
	THE USE OF INFRARED THERMOGRAPHY IN STROKE REHABILITATION: A SYSTEMATIC REVIEW Ganesan, B. *, Prasad, M. S., Yip, J., Kunnumpurath, B., Fong, K. N. K.
	EFFECTS OF PRISM ADAPTATION FOR LEFT AND RIGHT UNILATERAL SPATIAL NEGLECTS IN PATIENTS WITH SUBACUTE STROKE: A RANDOMIZED CONTROLLED TRIAL Feng, D.*, Luo, L., Zhang, H., Chen, Y., Chen, B., Fong, K.
	EVALUATION OF REACTION TIME USING A GAME SYSTEM WITH PRESENTING MULTIPLE SENSORY STIMULATION: A PRELIMINARY STUDY Tatsukawa*, S. T., Kaihotsu, G. K.,Toda, H. T., Chin, C. T.

Oral Presentations

28 August 2022

SESSION 4B	
CLINICAL APPLICATIONS OF ROBOTICS	
	Title and Author(s)
15:45 – 17:15	TELEROBOTICS SYSTEM HELPS PEOPLE WITH SPINAL CORD INJURIES RETURN TO WORK: A PILOT CASE REPORT Chow, K. M.
	APPLICATION OF ""BEDRIOD"" TO IMPROVE THE INDEPENDENCE OF PEOPLE WITH LIMITED BODY MOVEMENT Yu, K. P.*, Tsoi, K. M., Shum, M. H., Chan, K. L.
	APPLICATION OF SMART LIFTER TO PROMOTE PROPER SIT-TO-STAND POSTURE OF ELDERLY IN OLD-AGED HOME SETTINGS Chan, S. C. C., Fan, K. L., Wong, S.
	IN-BED ROBOT-GUIDED ANKLE MOVEMENT TRAINING IN EARLY SUBACUTE STROKE SURVIVORS: A PILOT CLINICAL TRIAL Huang, M., Zhang, C., Chen, K., Xu, D., Kehs, G., Zhang, L.
	DESIGN AND EXPERIMENTAL VALIDATION OF A HYBRID PROSTHETIC KNEE Wang, X.*, Li, L., Zhang, Z., Sun, J., Meng, Q., Yu, H.
	THE REHABILITATION ROBOTICS WITH SERIES ELASTIC ACTUATOR JOINT Liu, L., TENG, L.*
	INTEGRATED DESIGN OF HIP-KNEE JOINT FOR A HIGH BIONIC PROSTHESIS Luo, S. L.*, Chen, Y. X., Zhu, H. X., Shu, X. L., Yu, H. L.

Poster Presentations

Presenter(s)	Title of Presentation
Clinical Application of Assistive Technology (AT)	
Feng, D. *, Chen, Y., Zeng, X., Zhao, Li., Zhang, A.-R.	Remote self-management intervention for spinal cord injury: a systematic review
Sit, L. M. K.*, Chan A. P. S., Chan, Y. F., Lau, A., Au, B. K. M.	Effectiveness of the Gerontechnology Library In Enhancing Patient's Care
Lee, C. Y., Yu, K. P.*, Chan, K. K.	Virtual Reality Powered Wheelchair Training Simulation
Tsoi, K. M., Yu, K. P., Chan, K. K., Chan, K. L.	Boundary Alert System for Powered Wheelchair Training in Confined Area
Zhou, J.*, Qiu, Q., He, L. L., Chen, H.	Home Environment Assessment and Modification in Mainland China: A Survey of Current Status
Artificial Intelligence (AI) and Robotics	
Li, W. *, Yu, H.	An Adaptive Dynamic Training Strategy For Improving The Ability To Interact In Myoelectric Pattern Recognition

Oral Presentations and Poster Presentations - Awardee list

Best Oral Presentation Award	
Gold Award	***Presenter:*** Ms Mi Suen Connie Lee (Hong Kong SAR) Hospital Authority, Queen Mary Hospital ***Title:*** APPLICATION OF VIRTUAL REALITY FOR PERITONEAL DIALYSIS EXCHANGE LEARNING IN PATIENTS WITH END-STAGE RENAL DISEASE AND COGNITIVE IMPAIRMENT ***Authors:*** Lee, M. S.*, Fong, N. K., Mok, M. Y., Lam, M. K., Kung, Y., Chan, P. W., Ma, K. M., Lui, S. L., Kwan, P. Y., Chu, W. L., Hui, P. C., Yau, S. F., Kwan, W. L., Chan, Y. M., Chan, T. M.
Silver Award	***Presenter:*** Mr Wai Lok Cheung (Hong Kong SAR) Hospital Authority, Tuen Mun Hospital ***Title:*** A RANDOMISED CONTROLLED TRIAL IN APPLICATION OF MOTION SENSORS IN ACTIVITIES OF DAILY LIVING TRAINING PROGRAM ON FUNCTIONAL IMPROVEMENT OF STROKE PATIENTS ***Authors:*** Cheung, W. L.*, Lam, C. M., Cheung, T. Y.
Bronze Award	***Presenter:*** Mr Ka Leung, Marko Chan (Hong Kong SAR) Community Rehabilitation Service Support Centre ***Title:*** APPLICATION OF COMBINED NEUROFEEDBACK (NFB) AND TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) IN STROKE COGNITIVE REHABILITATION ***Authors:*** Chan, K. L. *, Yu, K. P.*, Tong, K. Y. *

Best Poster Presentation
Presenter: Dr Wei LI (China) University of Shanghai for Science and Technology, Institute of Rehabilitation Engineering and Technology ***Title:*** AN ADAPTIVE DYNAMIC TRAINING STRATEGY FOR IMPROVING THE ABILITY TO INTERACT IN MYOELECTRIC PATTERN RECOGNITION ***Authors:*** Li, W. *, Yu, H.

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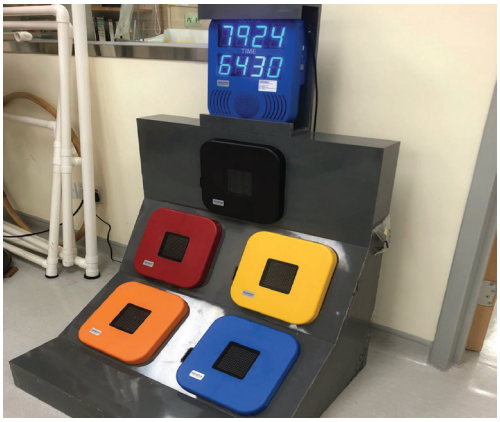

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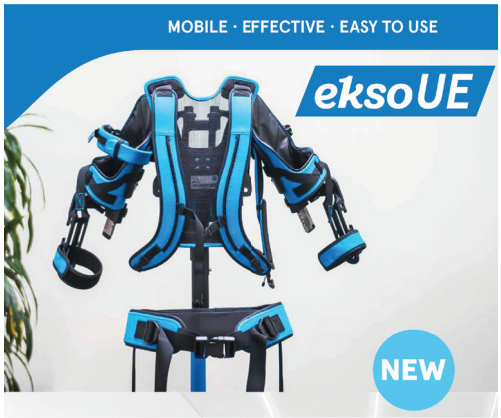

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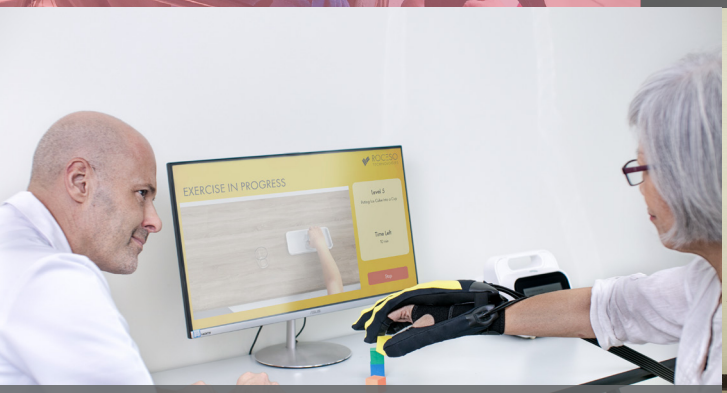

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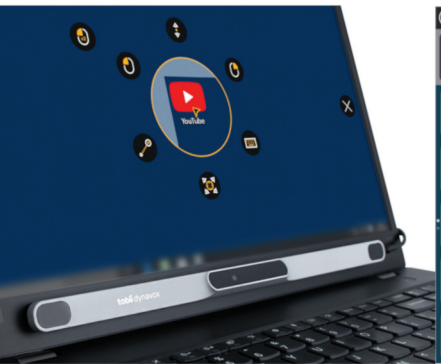

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