



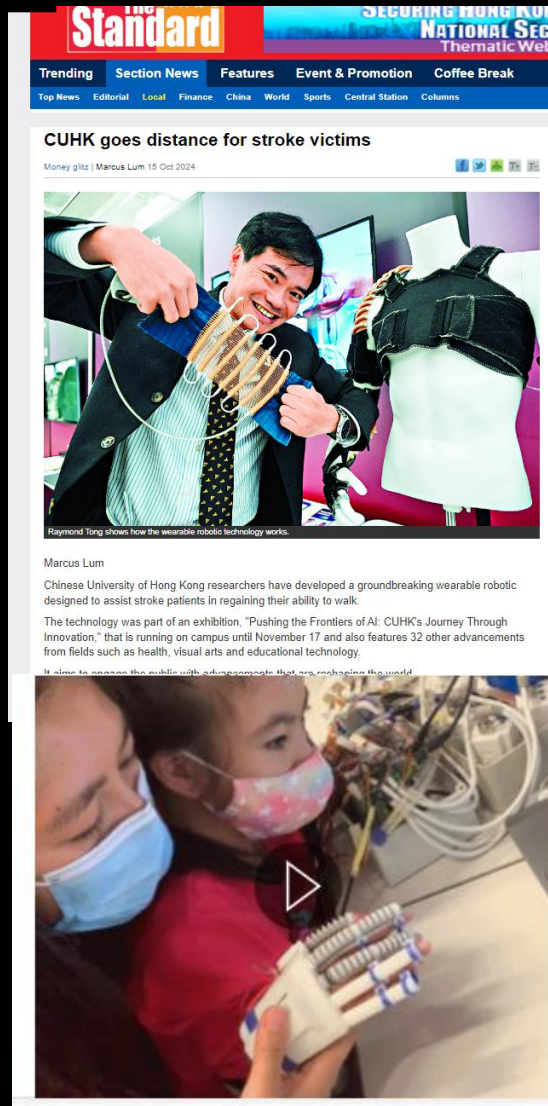
Hopebotics HandTasker

Facilitate Neural Remodeling in Stroke Rehabilitation by Brain-Computer Interfaces (BCI) and Personalized Wearable Robotic Hands

Prof. Raymond Tong

**Department of Biomedical Engineering,
The Chinese University of Hong Kong**

Over 20 Years, We Have Changed **Thousands of Lives** in **Adults and Kids with Brain damage**



World-Class Partnerships



Prof. Raymond Kai-Yu Tong (PIC)



- **Founding Chairman** of the Department of Biomedical Engineering at the CUHK (the first BME department in Hong Kong)
- **AIMBE Fellow**, USA
- One of **Founding Fellows** of the Hong Kong Youth Academy of Innovation and Technology
- **Chairman**, Asia Regulatory Professional Association (ARPA)
- **Global Ageing Influencers 2021**, Singapore
- **Ten Outstanding Young Persons** (香港十大傑出青年)
- **University Education Award**, CUHK
- His technology had helped 「阿Mo」 MIRROR演唱會意外中嚴重受傷的舞蹈員李啟言, 「斌仔」鄧紹斌及「復康之父」方心讓醫生
- **Gold medal and two special prizes**, SVIIF, Silicon Valley, July 2024 (XoMuscle)
- **Grand prize** in International Exhibition of Inventions of Geneva, 2012 (**Hand of Hope**, first invention in Hong Kong, 40 years ever)
- Founders of several technology startup companies

Total patents: **30+** (CN; US; EU) Total peer reviewed papers: **300+**

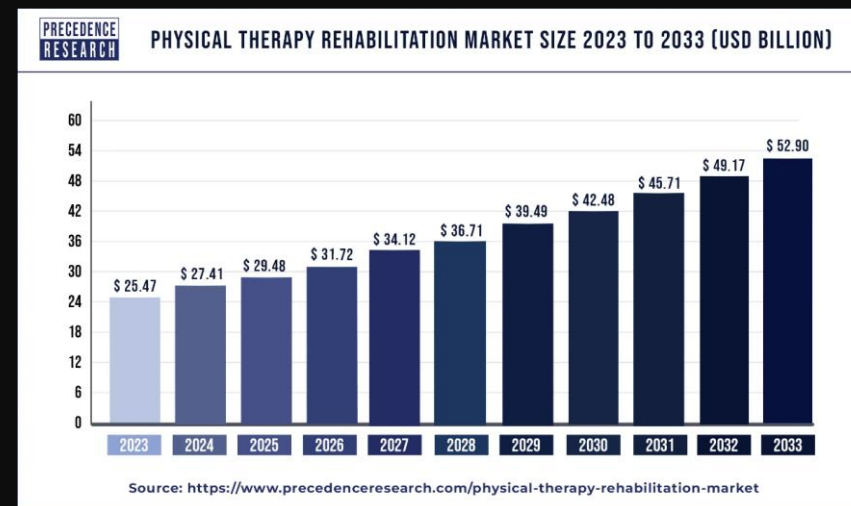


Brain damage: Stroke & Cerebral Palsy

1st Leading disability

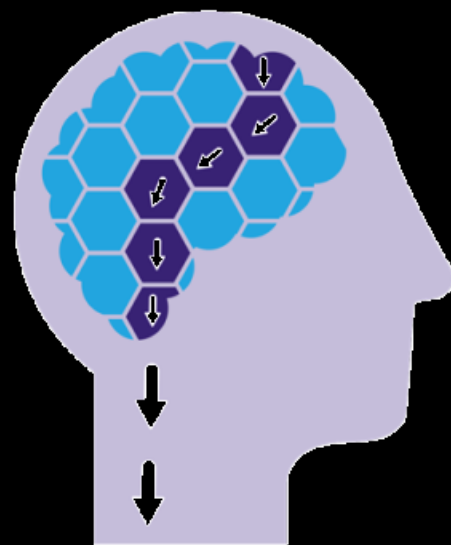


*Heavy burden on
social / community*



Growing at a CAGR of **7.58%** from 2024 to 2033. Driven by Ageing population.

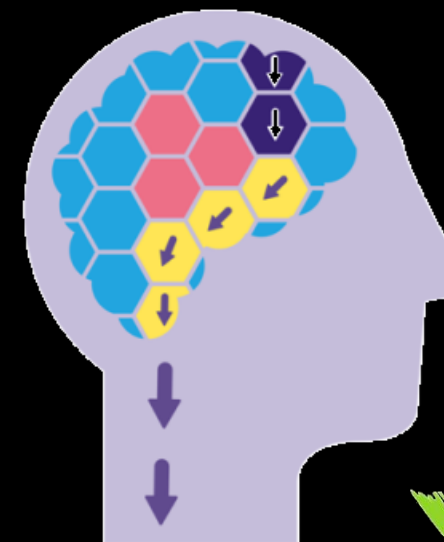
Uniqueness of Our Solutions



Healthy Brain



Damaged Brain



Re-connected Brain

Rehabilitation
Redefined

Intention from Brain + Rehab robot to complete the task = Motor Learning

FAST & EFFECTIVE (Long term effect)

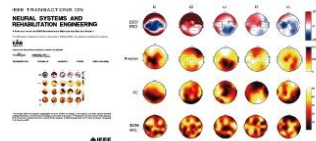
Core Tech: **Brain-computer Interface (BCI)**

Research Frontiers

[Home](#) | [English](#) | [简体](#) | [繁體](#) | [UGC](#) | [RGC](#)

- [A SWOT Analysis of the Research Arena in Hong Kong](#)
- [Advanced Micro Robotics in Robot Network and Biomanipulation](#)
- [Interactive Control Strategy in a Robotic System for Early Stroke Rehabilitation](#)
- [Adaptive robust control for a class of uncertain nonlinear systems and its application to spacecraft control](#)
- [An integrated model for monitoring Qinghai-Tibet railway deformation based on DInSAR technology and GPS observations](#)
- [Discovery of complex organic](#)

Interactive Control Strategy in a Robotic System for Early Stroke Rehabilitation



The channel selection of the brain signal for stroke rehabilitation training has been featured in the cover story of the top international journal IEEE Transactions on Neural Systems and Rehabilitation Engineering (2011.12)

Based on the success of the basic research results, the project had been funded by the HKSAR Government's Innovation and Technology Fund (ITF) in 2011 to implement the control algorithm to build a Brain Training Device with robotic hand for the recovery of survivors after stroke. This novel device can detect brainwave, and thereby control the movement of paralyzed limbs, or go even further to control a robotic hand based on its sophisticated algorithm.

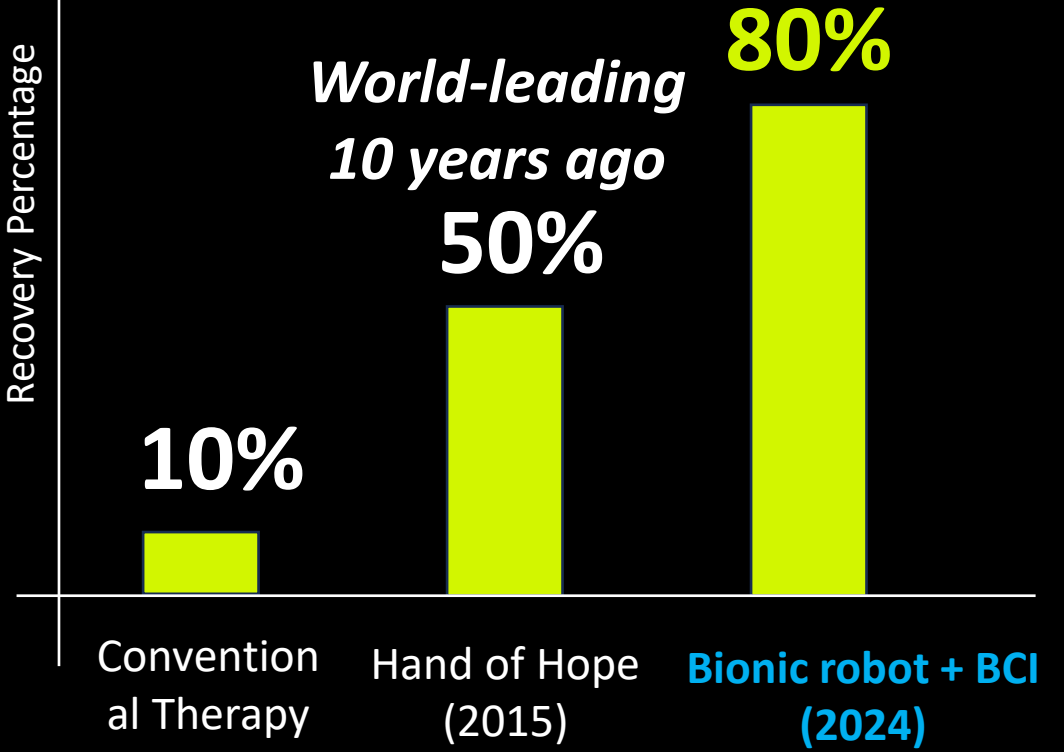
Stroke is a cerebrovascular accident with high disability and mortality rates. As stated in the Hong Kong Hospital Authority Statistical Report 2005-2010, annual stroke admissions to the hospital has been increasing from

The research was led by Prof. Raymond Tong Kai-yu, who is also the Principal Investigator of the Exoskeleton Hand



Break-through Therapeutic Effect

Clinically Significant Recovery Percentage



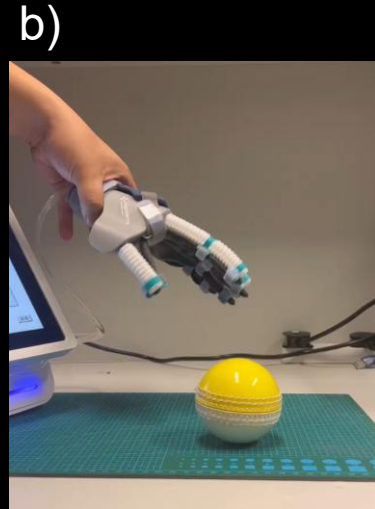
HandTasker®

Personalized robotic hand with **WORLD-BEST** Rehabilitation effect and could assist **dexterous grasping**

Only weighs **150 g**
Easily **Customized**



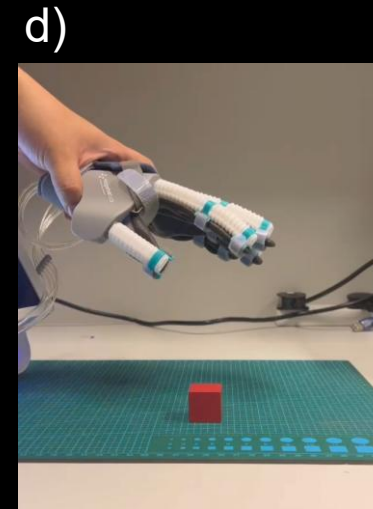
Cylindrical grasp
(Bottle, 0.5L)



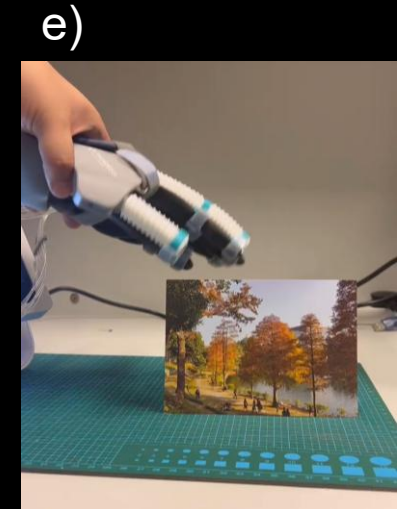
Spherical grasp
(Ball, $d=7.5\text{cm}$)



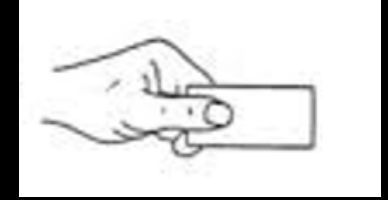
Tripod Pinch
(Maker pen, $d=2\text{cm}$)



Oppositional pinch
(Cube, $d=2.5\text{cm}$)



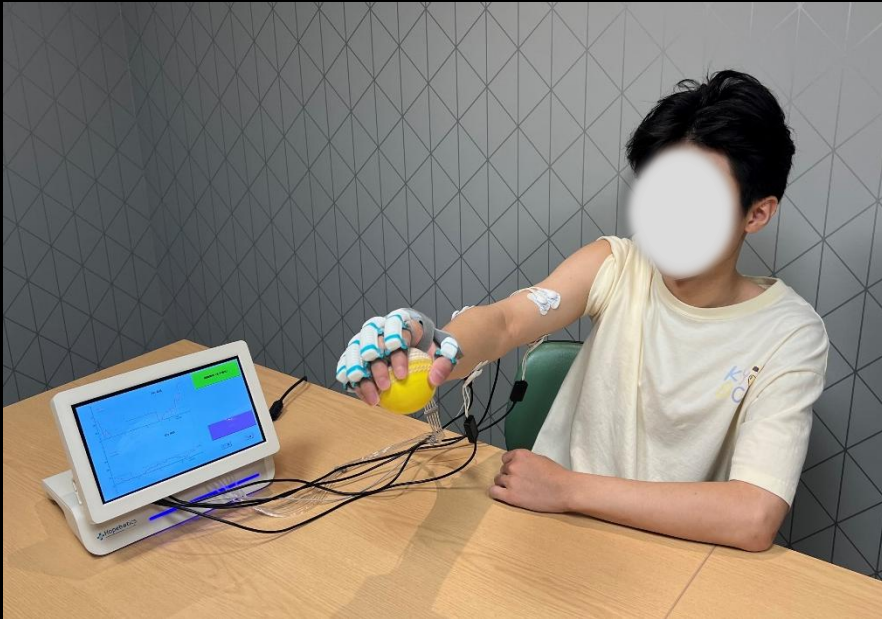
Lateral pinch
(Postcard, $t=0.2\text{mm}$)



HandTasker® Pro

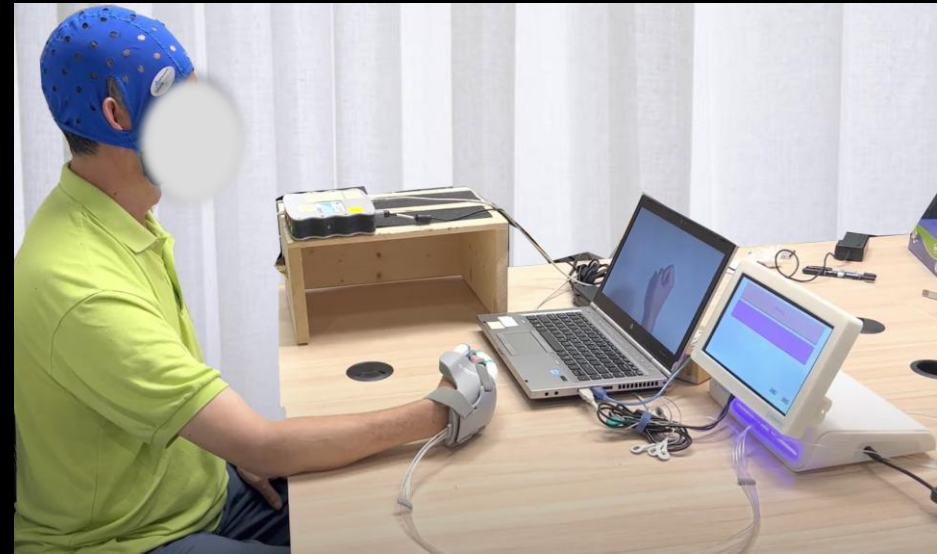
Intention-driven technology that can “read” your mind

HandTasker® Pro (EMG)



Precisely extract **EMG** from the paretic limb to control the HandTasker

HandTasker® Pro (BCI)



Extract **ultra-weak EEG signals** and personalize the decoding of intent to control HandTasker

HandTasker[®] Home

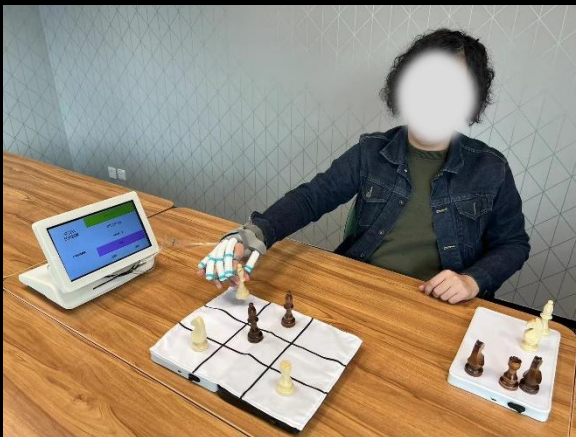
Easy-to-use HandTasker that can conduct professional training even at home

Additional
"Smart Boards"
Provided

A



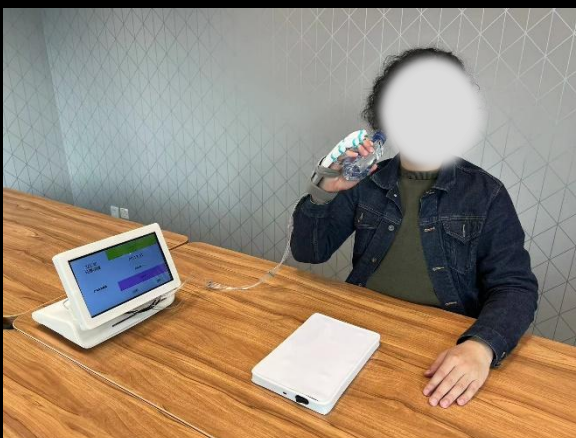
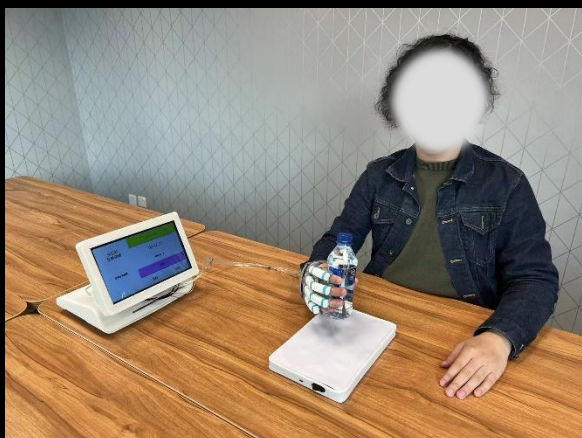
B



D

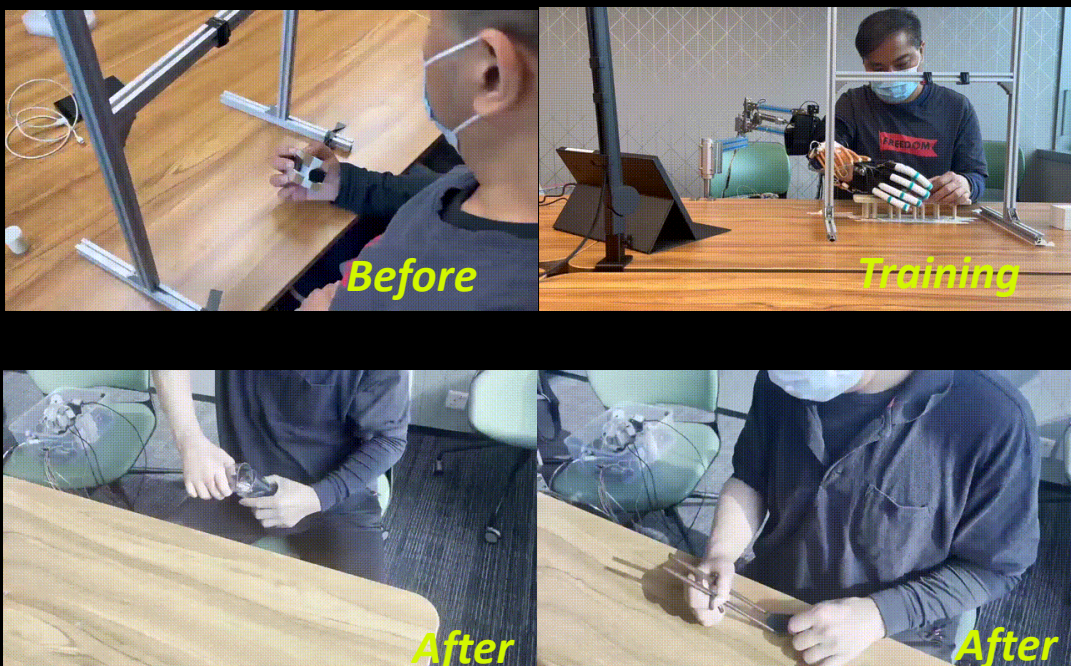


C



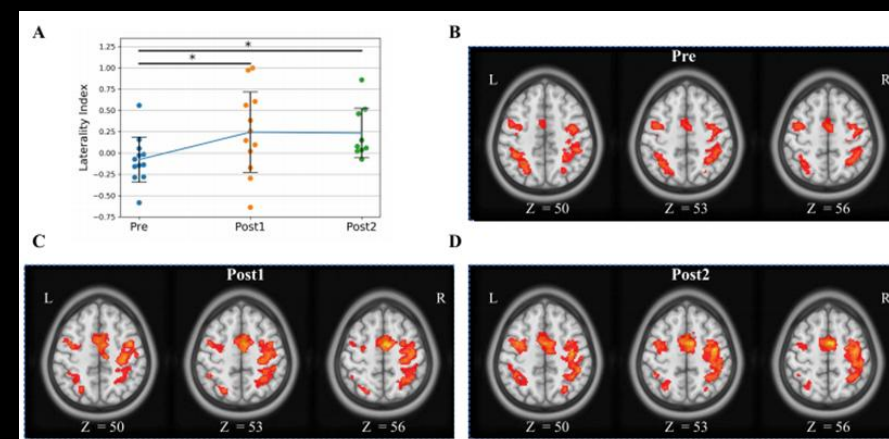
Clinical Evidence: Stroke Rehabilitation

Upper Limb



He relearned **pouring water**
& **using phone** in 2 Months!

Over **80%** of stroke participants achieved significant improvements in limb motor function after **2–3 months** of training, and these gains were sustained at least **6 months after training**.



Neural connectivity increased
significantly **after training**

Team Members



David SHI

Chief Executive Officer

- **Ph.D. in CUHK Biomedical Engineering**
- Lead developer of **3** medical devices with **CE/FDA approved**
- **CUHK Social Impact Award**
- Successfully **launched products overseas** through the Belt and Road Alliance



Disheng XIE

Chief Technology Officer

- **Ph.D. in CUHK Biomedical Engineering**
- Inventor of XoMuscle (**World's best Artificial Muscle** in proformance)
- **Gold Medalist** at Geneva & Silicon Valley Invention Exhibitions



Yujie SU

Chief Product Officer

- **Ph.D. in CUHK Biomedical Engineering**
- Pioneer of the **world's first adaptive control algorithm** for artificial muscles
- **High accuracy Brain-computer Interface Algorithm** (over 90%)



Fanny TONG

Chief Operating Officer

- **Former Chief Textile Consultant** at a global top-3 testing firm, delivering compliance solutions for 200+ products.
- **Fashion Design Consultant** for international brands, bridging aesthetics and material innovation.
- **Ph.D. in Fashion & Textile, PolyU**



Liqin MA

Chief Marketing Officer

- **5+ years** as marketing manager in healthcare and tech
- Expanded hospital and special school markets in **HK and Mainland China**
- Direct sales experience with **50+ hospitals**.



Eugene Lee

Chief Regulation Officer

- **5+ years** of regulatory experience in the medical device industry
- Successfully led multiple products through **CE, FDA, and ISO 13485** certifications
- **Key regulatory leader** in a fast-growing medtech startup

Regulatory Progress



[FDA Home](#)³
[Medical Devices](#)⁴
[Databases](#)⁵

Establishment Registration & Device Listing

[New Search](#)
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Proprietary Name:

Hopebotics HandTasker

Classification Name:

EXERCISER, FINGER, POWERED

Product Code:

[JFA](#)⁶

Device Class:

1

Regulation Number:

[890.5410](#)⁷

Medical Specialty:

Physical Medicine

Registered Establishment Name:

[HOPEBOTICS LIMITED](#)⁸

Owner/Operator:

[Hopebotics Limited](#)⁹

Owner/Operator Number:

10093010

Establishment Operations:

Manufacturer

FDA listed

CE listed



European Commission

EUDAMED - European Database on Medical Devices

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([#/screen/home](#))>
[Devices/SPPs](#)
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UDI-DI: 04897148250017

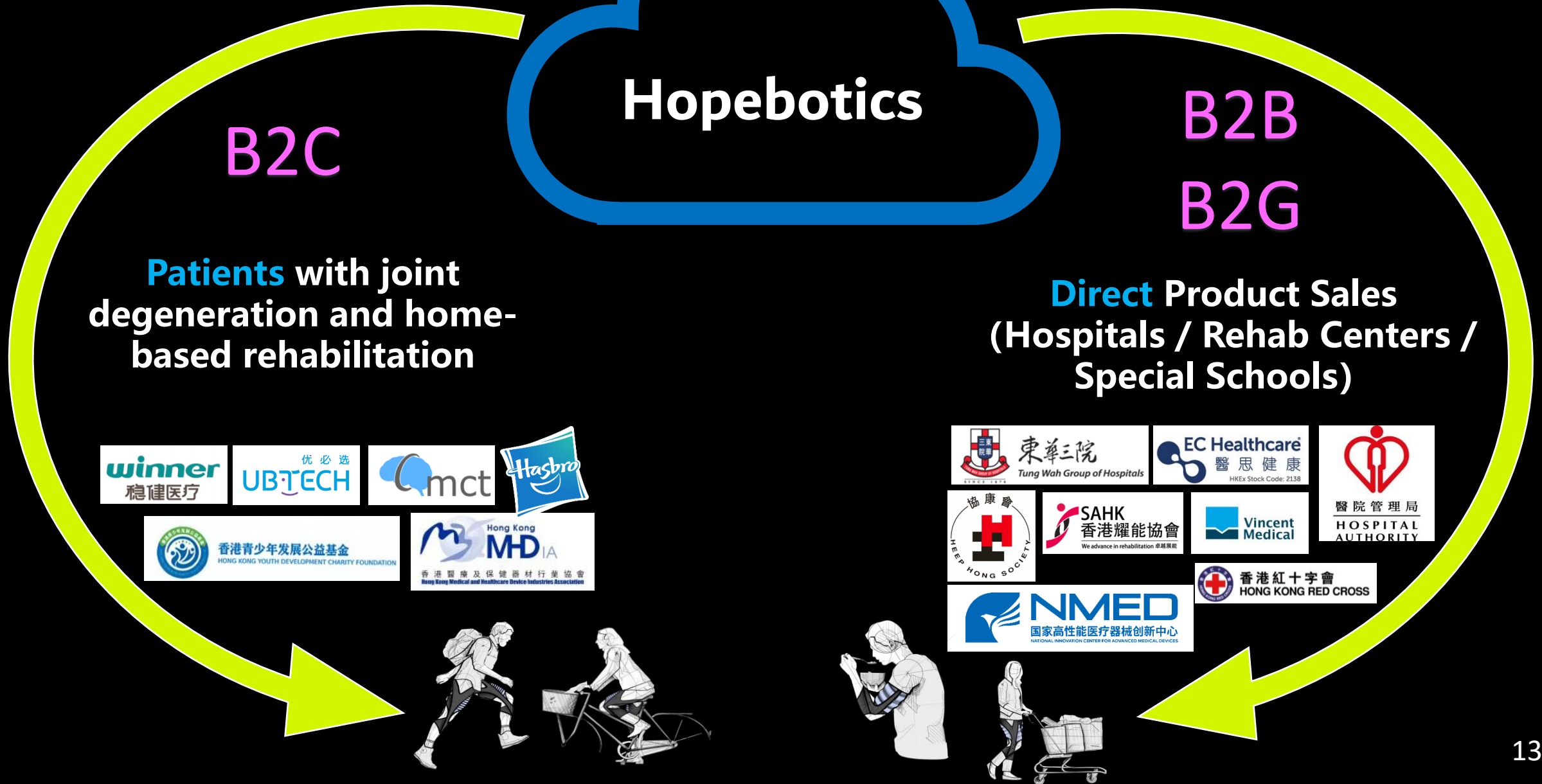
Manufacturer details

Version 1 (Current)

Last update date: 2025-04-14

Actor ID/SRN	HK-MF-000047409
Role	Manufacturer
Country	Hong Kong
Organisation name	Hopebotics Limited [EN]
Address	Room 612, 6/F, Building 17W, Hong Kong Science Park, No.17 Science Park West Avenue, 000000, Tai Po
Telephone number	+852 8417 6330
Email	info@hopebotics.org
Active device	Yes
Device intended to administer and / or remove medicinal product	No
Device model	HB-SCH01
Device name	HandTasker

Business Model



Current HK Market Channels

Public/Private Hospitals



Community Rehabilitation Centers



Special Schools





“Rehabilitation is not the end of the treatment, but the beginning of a new life”

*Light up the **Hope** with
Robotics Technology!*

