

Scholars' updates

Cheung Sai Ho

Individual Scholarship - Master's Degree in Information Systems at Hong Kong Baptist University ("HKBU")

Big congratulations to Sai Ho! After years of hard work under the tutelage of his supervisors Dr. Bryon Choi and Prof. Joseph Ng from the Department of Computer Science of HKBU as well as his mentor Howard Ling (Chief Consultant of Hong Kong Council of Social Service - Social Enterprise Business Centre and Adjunct Associate Professor of HKBU), he has received seed funding of HK\$100,000 from the Social Innovation and Entrepreneurship Development Fund ("SIE Fund") to enable him to continue refining his own invention (titled CP2Joy) which was originally developed as his final project for his Master's degree. The CP2Joy system aims to assist people with multiple physical disabilities (e.g. Cerebral palsy 大腦痲痺, Tetraplegia 四肢癱瘓 and Muscular dystrophy 肌肉萎縮) to use a special 'joystick device' coupled with 'voice commands' to operate a computer instead of using the traditional keyboard and mouse input. The ultimate goal is to improve computer accessibility for people with severe physical and multiple disabilities, thereby improving their ability to learn, communicate and work independently.



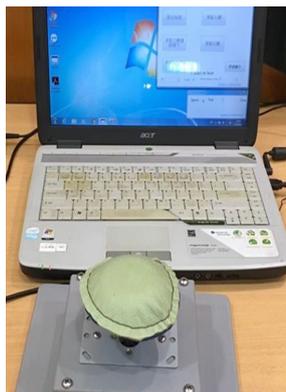
FRONT ROW (FROM LEFT): WAI CHEUNG (SAI HO'S CLOSE FRIEND), CHEUNG SAI HO AND SAI HO'S DAD
 BACK ROW (FROM LEFT): HOWARD LING (SAI HO'S MENTOR), CINDY CHAN (DIRECTOR OF CENTRE FOR INNOVATIVE SERVICE-LEARNING, HKBU) AND DR. Y.M. WONG (DIRECTOR OF ENTREPRENEURSHIP AND INNOVATION CENTRE AND PROFESSOR OF ENTREPRENEURSHIP, HKBU)

Although there are different types of assistive computer tools and software (virtual keyboards, somatosensory system and eye-trackers) which can assist people with physical disabilities to both enter text and maneuver the mouse; these have certain limitations that cannot cater fully to their diverse and complex needs, especially those with severe cerebral palsy, which Sai Ho himself has suffered from since birth. For these individuals, the capability of their motor functions is hindered so they have little to no control over their body movements or speech. They can only rely on electronic wheelchairs to move around and can only express themselves in a few simple words. Being aware of such limitations in existing software, Sai Ho developed this unique model which aims to allow the disabled to perform computer operations through several key functions including 1) on-screen keyboards with scrolling letters; 2) simulating mouse movements with joysticks, and 3) using voice recognition technology to simulate mouse clicks. Furthermore, it incorporates the "rolling selected letters", the latest input technology developed by HKBU. When the user sees their desired letter turning to a specific position, they only need to make a designated tone, and the letter will automatically pop up on the screen. For this method, there is little concern about uncontrollable body movements inadvertently pressing the wrong key, therefore the user interface is highly accurate.

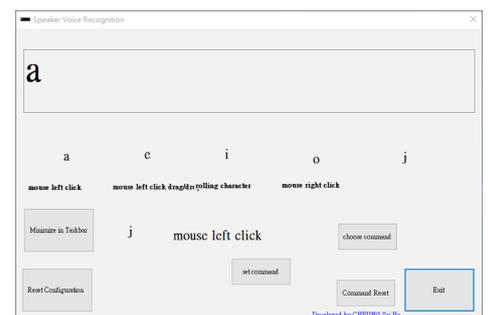
Demonstration Video:
<http://www.sunit2u.com/hkbu/cpdemo.mp4>



SAI HO INTRODUCING HIS "CP2JOY SYSTEM" JOYSTICK PROTOTYPE AT THE SIE FUND PITCHING SESSION

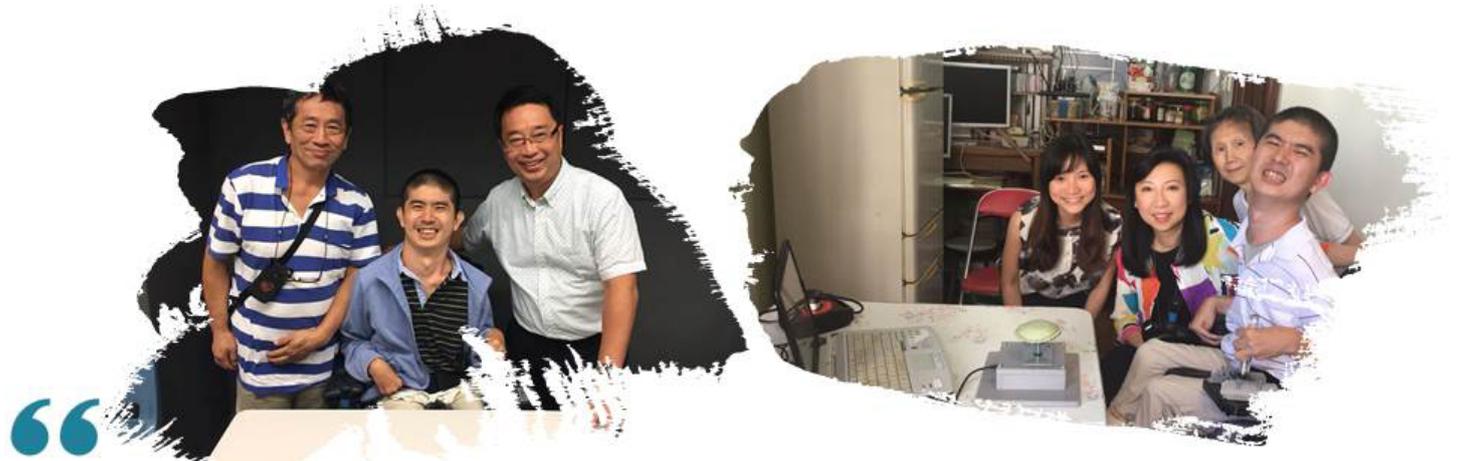


THE "CP2JOY SYSTEM" FACILITATES COMPUTER INPUT AND MINIMIZES TYPING ERRORS FOR PEOPLE WITH SEVERE PHYSICAL DISABILITIES



In the coming months, the product will be tested out at the Hong Kong Red Cross John F. Kennedy Centre (Sai Ho's Alma Mater) and Direction Association For The Handicapped; benefitting 12 secondary school students and working adults in need. User data will also be gathered through a privacy-protected remote recording function in order to facilitate future improvements and upgrades to the system. In addition to the funding support, 4 departments of HKBU (Service Learning, Entrepreneurship, Marketing, and Computer Science) have already agreed to assist Sai Ho throughout the enhancement process. With more evidence of the practicality and applicability, he will hopefully be able to get additional funding from the SIE Fund in the future. Sai Ho aspires to promote this CP2Joy system to the market and fulfill his dream of establishing a social enterprise to help people with disabilities.

Sai Ho's thank-you note:



“ 雖前路漫漫,但覺得人生要有目標和對社會有承擔,才可惠及社群。撫心自問,今時今日,學歷普及化,發展步伐急促,根本我們好難再有優勢。一定要有銳利觸覺,創新意念和純熟技巧。這一切都要靠時日磨練,經歷無數錯敗和痛苦來換取。

此外,亦感謝利希慎基金和浸大在3年來的支持和鼓勵,才可將夢想轉為事實。加上好感謝吳教授比機會和在旁鼓勵,令科研路上我並不孤單,更何況施比受更有福,努力付出,得到認同,乃吾感喜悅而光榮之時。

English translation: Although the road ahead is long, I feel that we should set clear goals and have a commitment to society to benefit the needy. With more educational opportunities and a rapid pace of development, it is difficult to maintain a competitive advantage. One must retain a keen sense of innovative thinking in order to remain relevant. All of these have to be honed with time and experience, coupled with innumerable mistakes and pains.

In addition, I would like to thank LHF and HKBU for their staunch support and encouragement in the past 3 years to turn my dream into reality. Thank you, Prof. Ng for offering me an opportunity and unwavering encouragement. I know that I can count on many people as I embark on further research. I feel happy and proud that my hard work is being recognized, and feel truly blessed that I am able to give back rather than to just receive.



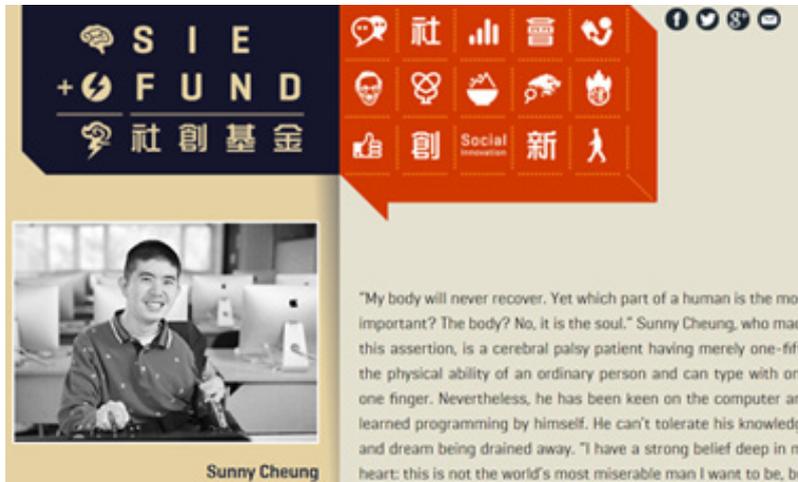


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SAI HO'S SUCCESS STORY ON THE SIE FUND WEBSITE:

[HTTPS://WWW.SIE.GOV.HK/EN/RESOURCES/HKSI/DETAIL.PAGE?CONTENT=10178](https://www.sie.gov.hk/en/resources/hksi/detail.page?content=10178)

Kudos to LHF scholar, Cheung Sai Ho, who has realized his dream of becoming a social entrepreneur in Hong Kong! Sai Ho has secured prototype funding from the Social Innovation and Entrepreneurship Development Fund ("SIE Fund") to support the development of his innovative voice-controlled input software (titled "CP2Joy"), which enables severely disabled people to use computers. His success story has been showcased in various media outlets, in which Sai Ho has received huge critical acclaim, and he has been invited to share his journey by speaking at various public events. Sai Ho's testimony has been an uplifting and heartening one, exemplified by the triumphs he has had over many challenges and his persistence through setbacks that threatened to derail his ambition along the way.

Despite his severe disability, Sai Ho, a recent graduate from HKBU's Master's Degree in Advanced Information Systems, has always endeavored to use his computing skills to contribute to society. He has suffered from athetoid cerebral palsy since birth, a neurological disorder affecting speech and muscle movement. This means that he can only type on a keyboard with one finger on his right hand, producing only one or two Chinese characters per minute. Despite these difficulties, Sai Ho did not let his disability define his life and pursued his interest in computer programming. These life experiences inspired him to seek ways to address the limitations faced by the disabled community in computing by developing CP2Joy. CP2Joy is the first human-computer interface for people with severe disabilities such as Cerebral Palsy, Tetraplegia and Muscular Atrophy. It can even assist stroke patients and those that have sustained serious injuries affecting their motor skills. The device allows users to operate the computer independently through a tailor-made 'joystick' supplemented by voice commands to make instructions e.g. mouse clicks, drags and drops and keystrokes by pronouncing the 5 vowel sounds ("a, e, i, o, u"), thereby enabling the user to type accurately and efficiently with minimal motion compared to a traditional mouse and keyboard.

The LHF team recently had the pleasure to catch up with Sai Ho and his family at HKBU in celebration of his graduation, upon which he became the university's first postgraduate student with severe disabilities. Sai Ho, garbed in his graduation gown, was accompanied by his proud parents, who shared Sai Ho's journey and thanked LHF for empowering him to pursue his dreams. With the assistance from HKBU and the support from the SIE Fund, Sai Ho has set up his own social enterprise to develop CP2Joy and launch and promote it in the market. He has already conducted trial studies at his alma mater, Hong Kong Red Cross John F. Kennedy Centre, and also through some NGOs working with the disabled community. He is also seeking advice from experts to further enhance the software. To fulfil Sai Ho's wish to offer the CP2Joy out to benefit more people in need, the team will talk to related NGO partners in the elderly and rehabilitation sector and refer potential clients for him.

"I wish it can benefit all kinds of disabled persons in future, helping with their learning and enhancing their productivity while bridging the digital gap," says Sai Ho.



THE LHF TEAM WAS VERY DELIGHTED TO MEET WITH SAI HO (3RD FROM RIGHT) AND HIS FAMILY AT HKBU TO CELEBRATE HIS GRADUATION. LHF PAST SCHOLAR AND HKBU'S ASSISTANT PROFESSOR, DR. CHEN TING (2ND FROM LEFT), ALSO JOINED IN TO SHARE THE JOY AND ACHIEVEMENTS OF SAI HO.



SAI HO'S UPLIFTING SUCCESS STORY OF INVENTING CP2JOY WAS SHOWCASED AT THE COMMISSION ON POVERTY SUMMIT 2019. VIDEO LINK BELOW :

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=TQ3JI164F9S&V=L=ZH-HK](https://www.youtube.com/watch?v=TQ3JI164F9s&vL=ZH-HK)