

Innovation and Enterprise

Inventive Solutions, Dynamic Incubator

More than just catalysts for economic growth, today's startups are the engine powering inventive solutions. Not only do they address contemporary problems but they also create new jobs and new products and services, driving innovation and contributing to economic development.

Since its establishment in 2011, NUSRI China has been fuelling the growth of nascent startups through BLOCK71 and has since incubated over 100 firms. As an integral part of NUS' entrepreneurial ecosystem, NUSRI China (BLOCK71) serves as a launchpad for Singapore's deep-tech startups entering the China market, enabling them with extensive resources and business networks to support their growth and market outreach in China.

Spanning diverse sectors from healthcare to immersive technologies, many of these startups have benefited from the incubator, and in this section we feature three such startups and their innovations. We also showcase InnovFest China 2023, an international platform for top-tier technology and business exchange between China and Singapore.

Ambient Blood-Pressure Monitoring Elevates Elderly Care

Chongqing Yaozhikang Technology Co. Ltd. is revolutionising the landscape of health monitoring with its “Sensori VSM” system. Recognising the challenges of traditional blood-pressure monitoring methods—from the discomfort of tight cuffs to cross-infection risks—the startup has harnessed artificial intelligence to offer a safer and more convenient contactless solution. This invention could potentially benefit a vast global market of 1.28 billion adults grappling with hypertension.

Developed by a team of PhD experts, Sensori VSM not only ensures a hassle-free user experience, but also supports continuous monitoring and delivers measurement results swiftly within 10 to 30 seconds. The versatility of Yaozhikang’s technology is evident in its adaptability across various platforms, from intelligent health measurement robots to compact desktop versions, with further advancements on the horizon. In a post-COVID-19 world where heightened vigilance towards health and cleanliness prevails, this innovation emerges as especially pertinent.



The Sensori VSM by Chongqing Yaozhikang Technology Co. Ltd provides a contactless approach to blood-pressure monitoring, addressing the shortcomings of traditional methods.

Yaozhikang’s journey began at NUSRI Chongqing (BLOCK71) in April 2023, where the startup tapped into the wide-ranging resources and services tailored for tech innovators. At BLOCK71, Yaozhikang forged a strategic partnership with Chongqing Huiyuanjia Pension Institution Management Co. Ltd., a local smart pension enterprise. The collaboration facilitated discussion on product application scenarios, technological enhancements, and adapting to the smart pension market, providing Yaozhikang with invaluable insights into the local market dynamics.

Its founder, Dr Wang Bo, a NUS alumnus with expertise in the medical application of radio frequency (RF) sensors, said the incubator’s support was pivotal in scaling operations. The guidance received from BLOCK71 was crucial in refining their product and expanding their customer reach, bridging the gap between research and development and commercialisation.

Dr Wang Bo is complemented by co-founder Professor Guo Yongxin from the NUS Department of Electrical and Computer Engineering, who specialises in electronic design automation and the design of RF microwave- and millimetre-wave integrated chips. He also drives the business development of the startup’s products.

With patents pending and having published many papers and attended key conferences, Yaozhikang is poised to make significant strides in

health monitoring. The startup has applied for the China-Singapore ICM Joint Innovation Development Fund to facilitate its product launch in Chongqing. Yaozhikang’s roadmap also includes refining the technical indicators of their products to enhance the accuracy of readings, from blood oxygen to respiratory rate. Concurrently, designs for health and bedside robots are in the pipeline, with ongoing technological iterations aimed at elevating robot efficiency.

Eyeing The Immersive Future Of Medical Training

Purveyors of extended reality (XR)—which encompasses augmented reality (AR), virtual reality (VR) and mixed reality (MR)—now have eyes set beyond the realms of gaming and entertainment.

VRTist (Suzhou) Information Technology Co. Ltd., a subsidiary of its Singaporean parent company Global Intelligent Business Services Pte. Ltd. (GIBS), is leveraging the synergy of XR, artificial intelligence (AI) and Web3 to reshape medical training. What VRTist brings to the ever-evolving healthcare sector is an immersive experience marked by unparalleled precision.

At its core, VRTist specialises in weaving immersive technologies into educational platforms within healthcare. Drawing on a sophisticated blend of advanced technologies including distributed control systems, Internet-of-Things and medical imaging data, the startup has designed intelligent surgical systems underpinned by digital-twin technology. This innovation ensures unparalleled sub-millimetre surgical precision, enhancing medical and surgical training while offering a deeply immersive experience for aspiring medical professionals. The benefits are aplenty—from increased surgery success rates to cost-effective training and enhanced operational efficiency.

Since its incubation at NUSRI Suzhou (BLOCK71) in June 2023, VRTist has reaped the advantages of the vast resources and networks at its disposal. With sights set on expanding into broader healthcare education, the startup is crafting a product portfolio with advanced XR products and smart-education solutions, such as virtual simulation training for medical professionals and caregivers. As VRTist engages with academic institutions across China, BLOCK71 remains a vital cradle offering critical resources that supercharge the startup’s product development and marketing efforts.

The VRTist “Virtual Simulation Disability and Dementia Care Software” offers a simulated environment to facilitate enhanced care and interaction with seniors experiencing disability or dementia.



The VRTist “Elderly Ability Assessment Virtual Simulation Platform” harnesses virtual reality to accurately evaluate the physical and cognitive abilities of seniors in a controlled, immersive environment.



The driving force behind VRTist’s rise is its stellar team of seasoned professionals, led by co-founders Dr Derek Zhang and Alex Dai. Dr Zhang brings a wealth of expertise in data science and the Internet-of-Things, while Mr Dai contributes his proficiency in 3D visualisation and modelling. Complementing this leadership are dedicated researchers and specialists in healthcare and higher education. Collectively, the team’s expertise has led to the attainment of over 40 patents, solidifying the startup’s position as one of the leaders in the realm of XR-integrated healthcare.

With many awards and recognitions such as its status as a national high-tech enterprise and a standout SME, VRTist is not only shaping the course of medical training but also pioneering the digital transformation of the broader healthcare sector. Since 2022, the startup has honed its focus on caregiver education, partnering with local colleges and polytechnics to integrate simulation education and training. With early adoption yielding positive outcomes, VRTist plans to embed their solutions into formal curricula, marking a significant stride in reshaping caregiver education.

Robots Lend Stroke Survivors A Helping Hand

Robotics are rapidly becoming integral in our daily lives, from factory floors to hospital corridors. Haobotics Medical Technology (Suzhou) Co. Ltd with its core team and technology hailing from NUS, is at the forefront of blending robotic technology with healthcare, especially in addressing the rehabilitation challenges faced by stroke patients. Given the severe implications of stroke, Haobotics’ innovative approach grounded in neural plasticity promises a brighter outlook for countless patients and caregivers.

Haobotics’ comprehensive solution merges state-of-the-art rehabilitation robots with customised training programs and real-time health assessments, directly addressing the industry’s pain points. Many existing rehabilitation robots on the market are cumbersome and costly, with a limited focus on stroke patients. Furthermore, many companies offer only one or two products, failing to meet the diverse needs of stroke rehabilitation. Product fragmentation also complicates the integration and maintenance of different robots, which impedes data collection and analytics.

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Haobotics’ diverse product range addresses rehabilitation from the shoulder down to the ankle, providing nuanced care tailored to each phase of stroke recovery. Furthermore, the startup’s dedication to making healthcare accessible is underscored by its price reductions and the introduction of flexible rental plans, ensuring its patient-centric solutions reach a broader demographic.



Supported by the Jiangsu Industrial Technology Research Institute and Suzhou Industrial Park with a joint investment of CNY17,000,000, Haobotics is deeply rooted in innovation. An impressive 60% of the startup’s annual budget is channelled into research and development, highlighting its commitment to pushing the boundaries of rehabilitation care. Its products, characterised by their modular design, flexible force control and the use of data analytics, prioritise user experience while establishing new benchmarks in safety and performance within rehabilitation robotics.

Furthermore, maintaining partnerships with leading hospitals ensures that the startup’s product development aligns with the expertise of medical professionals. Thus far, local hospitals including Shanghai Huashan Hospital, Shanghai Yangzhi Rehabilitation Hospital, and Nanjing Ruihaibo Medical Rehabilitation Centre have integrated Haobotics’ robots into their workflows. The startup is also engaging with several Suzhou-based hospitals to expand the reach of its technology.

Founded by a team of experts, Haobotics is spearheaded by Professor Yu Haoyong, the Director of the NUS Biorobotics Lab, who has been researching rehabilitation robotics for over a decade. He is joined by Dr Han Shuaishuai, an expert in rehabilitation robotics control; Huang Rui, who focused on the clinical aspects of robot-assisted rehabilitation during her PhD at NUS; and Chen Yang, a rehabilitation medicine specialist with over ten years in rehabilitation robotics development and marketing.

Bolstered by ongoing support from NUS and with three exclusive patent rights under its belt, Haobotics is gearing up for expansion. The team anticipates filing for ten additional patents and is on track to secure two registration certificates for medical devices in the upcoming years.

Looking ahead, Haobotics's vision is clear: to tackle the clinical complexities of stroke and uplift the wellbeing of China's ageing populace. The startup's commitment dovetails with the 'Healthy China 2030' blueprint, reinforcing its goal to elevate healthcare standards in China and beyond.

An Assemblage Of Ideas, Innovation And Impact

Held in Suzhou from 9 to 10 October and in Chongqing from 12 to 13 October, InnovFest China 2023 marked the first gathering of innovative technology companies from Singapore and China since the COVID-19 pandemic. Jointly organised by NUSRI Suzhou and NUSRI Chongqing, and in close partnership with NUS Enterprise, the event serves as an international platform for top-tier technology and business exchange, offering entrepreneurs the opportunity to connect with potential collaborators, partners and enterprise customers.



During InnovFest China 2023 in Suzhou, Professor Tan Eng Chye, NUS President and Chairman of NUSRI China Management Committee, engaged in a hands-on experience with a rehabilitation robot developed by Haobotics Medical Technology (Suzhou) Co. Ltd.

The Suzhou leg of the event, themed 'Deep Tech from Lab to Market: Building an Innovation and Entrepreneurship Ecosystem', was attended by Mr Ni Qian, Member of CPC SIP Working Committee, Vice Chairman of SIP Administrative Committee, Professor Tan Eng Chye, President of NUS, and Ms Tham Wanrong, Deputy Consul-General, Consulate-General of the Republic of Singapore in Shanghai.

Many exciting companies showcased their offerings during the two-day event, covering diverse sectors from healthcare to sustainability and food technology. Among them was Spec. & Mass Guangzhi Testing, a standout from BLOCK71 Suzhou specialising in soil environment testing. Founded in 2020 by NUS alumna Dr Xu Wei, the startup offers comprehensive third-party testing services, detecting a range of pollutants in soil and groundwater. With initial support from BLOCK71 Suzhou in product development, market strategy, and intellectual property protection, Spec. & Mass has expanded rapidly ever since. In 2022, the company returned to BLOCK71 Suzhou to further enhance its research and technology translation initiatives.

Another highlight was PatSnap, which became the first NUS-supported unicorn in 2021. The company leverages artificial intelligence (AI) to provide a platform for global patent analytics, and has achieved significant growth since setting its roots in China with the support of NUSRI Suzhou and BLOCK71.

The Chongqing leg of InnovFest China, themed 'China-Singapore Cooperation and Industry Upgrade and Innovation', had a focus on smart vehicle technology, advanced materials and information technology, as well as Chongqing's key industries. The President of NUS Professor Tan attended the event, along with Mr Luo Lin, Member of the Standing Committee of Chongqing Municipal Committee, Secretary of the Party Working Committee of Liangjiang New District, and Mr Joel Tan Zhien, Consul-General, Consulate-General of the Republic of Singapore in Chengdu.

Over 400 local and international scholars, industry experts and entrepreneurs were invited to the event, where they participated in keynote speeches, discussions, networking sessions and technology showcases. 11 Singaporean startups were also invited to the event to showcase their offerings, covering fields like renewable energy, smart healthcare and intellectual property management.

During InnovFest Chongqing 2023, 11 projects were inked, marking a strengthened collaboration between Chongqing and Singapore in talent development and industry-university-research innovation. The agreements included the establishment of a new technology laboratory by NUS, Changan Auto, and NUSRI Chongqing. This collaborative venture will explore technological innovations, particularly in AI technology, smart cars and ICT industry integration, as well as new energy batteries. By leveraging the strengths of universities and research institutes in the innovation ecosystem, the laboratory aims to address challenges faced by enterprises during the engineering and mass production phases. Additionally, the event saw NUSRI Chongqing forming a partnership with Chongqing University for talent development, alongside their signing of nine industry-research strategic contracts with Chongqing-based enterprises.

InnovFest China 2023 highlights the growing collaboration between Singapore and China, and underscores the importance of cross-border partnerships in driving innovation and progress. Such initiatives ensure that both nations are better positioned to navigate the challenges of today's ever-evolving technological landscape.

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