

KNOWLEDGE TRANSFER &
INDUSTRY PARTNERSHIPS
知識轉移與夥伴業界



SHARING KNOWLEDGE THROUGH INDUSTRY COLLABORATION

業界協作 知識共享

PolyU brings technological innovation to business and industry with the aim of creating a new stream of advances that will better the world and benefit mankind.

理大將科技發明引入工商業界，旨為推動業界進步，改善世界，造福人類。

EXPERT ADVICE THROUGH CONSULTANCY

顧問服務 專家意見



PolyU Technology and Consultancy Company Limited (PTeC), the wholly-owned commercial arm of the University, links PolyU's research and expertise with industry and the community to create a positive impact on society and the region. During the year, PolyU's researchers were engaged in 523 new consultancy projects, bringing the expertise of over 350 academic consultants to 313 clients worldwide. Of these clients, 47% were from the corporate/industrial sector, 42% from government organisations and the remaining 11% from the NGO/educational sector. Emphasising service quality and client satisfaction, PTeC has had ISO9001 certified quality management systems in place since 2005.

理大科技及顧問有限公司為大學全資擁有，致力將理大的研究及專業知識應用於業界及社會，在社會和地區創造正向影響力。年內，理大科研人員承辦了五百二十三個新的顧問項目，共有超過三百五十位學術顧問參與其中，為全球三百一十三個客戶提供服務。當中百分之四十七的客戶來自企業及工商界，百分之四十二來自政府機構，其餘的百分之十一來自非政府組織及教育界。理大科技及顧問有限公司一直非常重視服務質素和客戶的滿意度，並自2005年起已獲得ISO9001認證。



2016/17 Project highlights 年度重點項目

| Faculty/ Department 院系 | Client 服務對象 | Consultancy project objective 顧問項目主旨 | Impact/Contribution 影響/貢獻 |
|--|---|---|---|
| 1 ■ Department of Civil and Environmental Engineering 土木及環境工程學系 | Water Supplies Department, HKSAR Government 香港特別行政區政府水務署 | To investigate the potential use of waterworks sludge as construction fill 研究以污泥作為建築填料 | Reduces the existing loading on landfills and provides the community with a long-term solution to waste recycling and resources management (more on p.92) 減少現時堆填區的負荷，以及為社區提供長遠的廢物回收及資源管理解決方案 (詳見第92頁) |
| Department of Computing 電子計算學系 | Huawei Technologies Co. Ltd. 華為技術有限公司 | To develop a Layered-federation Information Sharing Architecture to help users of different software exchange information 開發「分層聯盟信息共享架構」，方便不同軟件用戶互相交換信息 | Builds a practical system to meet the needs of data sharing on both the individual and institutional level, while advancing research knowledge in information centric networking and big data analysis 建立實用系統以滿足個人和機構層面的數據共享需求，提升信息中心網絡和大數據分析的研究知識 |
| Department of Industrial and Systems Engineering 工業及系統工程學系 | MTR Corporation 港鐵公司 | To design and develop an RFID-based falling object detection system for field application 設計和開發以無線射頻識別系統為基礎的墜落物檢測系統，以供實地應用 | Provides accurate information about falling objects for proactive intervention 提供有關墜落物的準確資料，以便即時處理 |
| 2 ■ Industrial Centre 工業中心 | Queen Elizabeth Hospital 伊利沙伯醫院 | To design and produce the Transcatheter Aortic Valve Implantation (TAVI) Simulation System, using 3D printing skills to help doctors and medical staff conduct surgery training 利用三維打印技術設計和生產經導管主動脈瓣植入模擬系統，幫助醫生和醫護人員進行手術訓練 | Allows hands-on training for medical staff in a safe emulated environment, in addition to passive observation (more on p.90) 讓醫生除了被動地觀察外，亦能在安全的模擬環境下實習培訓 (詳見第90頁) |



| Faculty/ Department 院系 | Client 服務對象 | Consultancy project objective 顧問項目主旨 | Impact/Contribution 影響/貢獻 |
|---|---|---|--|
| Institute of Textiles and Clothing 紡織及製衣學系 | Shaoxing Yuanse Digital Technology Co. Ltd. 紹興原色數碼科技 有限公司 | To develop automated minimum pattern repeat unit locating and stitching techniques, an advanced image segmentation technique and advanced pattern edge polishing technique used in the colour separation system for fabric printing 開發用於織物印花分色系統的自動最小回 頭單元定位和拼接技術、先進的圖像分割 技術和先進的圖案邊緣平滑技術 | Saves manpower and time spent on fabric printing process 節省在織物印花的流程上的人力和時間 |
| Interdisciplinary Division of Biomedical Engineering (renamed as Department of Biomedical Engineering) 生物醫學工程跨領域 學部 (已改名為生物醫 學工程學系) | Telefield Medical Imaging Ltd. 中慧醫學成像 有限公司 | To enhance the functions of Scolioscan, PolyU's proprietary 3D ultrasound imaging system for assessment of spine deformity 加強理大專利的三維超聲成像系統 Scolioscan的功能，用於評估脊柱畸形 | New applications such as rapid imaging, automatic measurement, network functions are developed to improve assessment outcome 開發快速成像、自動測量和網絡功能等 新的應用功能，改進評估結果 |
| School of Design 設計學院 | Hanssem Co.Ltd. 漢森 | To develop a novel furniture series with a focus on space utilisation for Chinese children living in Shanghai 為居於上海的中國兒童開發以善用空間為 主的新型傢具系列 | Enhances the healthy and well- rounded child development process by stimulating children's emerging talents and learning abilities 通過激發兒童的潛能和學習能力，促進 他們的健康和全面發展 |
| School of Hotel and Tourism Management 酒店及旅遊業管理學院 | China National Travel Service Group Corporation, Academy for Tourism Industry 中國旅遊集團公司 旅遊產業研究院 | To analyse how the completion of the Hong Kong-Zhuhai-Macao-Bridge will affect the behaviours of local and foreign tourists, and its impact on the tourism industry of Hong Kong 分析港珠澳大橋落成後對本地和外國遊客 的行為及對香港旅遊業的影響 | Provides insight and recommendations to Hong Kong tourism industry practitioners for formulating marketing strategies and exploring the potential of new tourism resources 為香港旅遊從業員提供意見和建議， 以制定營銷策略及發掘新的旅遊資源 之潛力 |



ACHIEVING COMMON GOOD THROUGH PATENTING AND LICENSING 專利與技術授權 造福各界

PolyU supports knowledge creation and scientific breakthroughs by researchers and students. As of June 2017, the University had obtained 789 cumulative patents and filed 1,515. In 2016/17, a total of 113 patent and trademark applications were filed and 44 granted.

Knowledge transfer through licensing enables partner companies to leverage PolyU technologies to enhance their competitiveness or create new products. During the year, the Institute for Entrepreneurship executed over 40 licensing agreements/non-disclosure agreements for PolyU's proprietary knowledge in many areas served by the University's faculties and schools.

理大重視研究人員及學生在創造知識和科研突破方面的成就。截至2017年6月，大學獲批專利累計七百八十九項，而申請中的專利則有一千五百一十五項。在2016/17年度，理大提交了一百一十三個專利和商標申請，並有四十四項獲批。

理大透過技術授權進行知識轉移，讓夥伴機構可以利用理大的技術來提升其競爭力或開發新產品。年內，理大企業發展院與業界簽訂逾四十項協議/保密協議，以轉移理大院系在多個領域的專有知識。



Licensed technologies and designs 授權技術及設計

Projects licensed to industry 授權予業界項目

| Faculty/ Department 院系 | Inventor 發明者 | Technology/Design 科技/設計 | Licensee 獲授權機構 | Benefits/Applications 優點/應用 |
|--|---|---|---|--|
| Department of Applied Biology and Chemical Technology 應用生物及化學科技學系 | Prof. Leung Yun-chung and Dr Lo Wai-hung 梁潤松教授及勞偉雄博士 | Anti-cancer drug - Human Arginase I 抗癌藥物-人類精氨酸酶 I | Avalon Polytom (HK) Ltd. | Production of pegylated human arginase I to deplete arginine for cancer treatment 生產用於以消耗精氨酸作癌症治療的聚乙二醇化的人類精氨酸酶 I |
| Department of Applied Biology and Chemical Technology 應用生物及化學科技學系 | Prof. Chan Sun-chi and Dr Tang Cheuk-on 陳新滋教授及鄧焯安博士 | Quinoline Derivatives as novel anti-cancer agents 喹啉衍生物作為新型抗癌藥物 | Aptorum Therapeutics Ltd. 知臨生化醫療有限公司 | Synthesis of a series of quinoline-based compounds with related cytotoxicity for cancer treatment 合成用於癌症治療、具有相關細胞毒性的系列喹啉類化合物 |
| Department of Applied Biology and Chemical Technology 應用生物及化學科技學系 | Dr Wong Ka-hing and Dr Leung Ka-sing 黃家興博士及梁嘉聲博士 | Food Hygiene Standard Certification System 食品衛生標準認證系統 | SGS Hong Kong Ltd. 香港通用檢測認證有限公司 | A new Food Hygiene Standard Certification System to certify domestic catering establishments in attaining a certain food hygiene standard 訂立新的食品衛生標準認證系統，以證明本地餐飲機構達到一定的食品衛生標準 |
| Department of Computing 電子計算學系 | Prof. Zhang Da-peng 張大鵬教授 | Integrated Palm Print and Palm Vein Biometric Identification System 綜合掌紋和掌心靜脈生物識別系統 | Smart Secure ID in Sweden AB | An integrated palm print and palm vein biometric identification system of high accuracy and security 具有高精密度和安全性的綜合掌紋和掌心靜脈生物識別系統 |
| Institute of Textiles and Clothing 紡織及製衣學系 | Dr Joanne Yip 葉曉雲博士 | Posture correction girdle for adolescents with early scoliosis 供有早期脊柱側彎問題之青少年用以矯正姿勢的腰帶 | OrthoPoly (HK) Ltd. | A flexible posture correction girdle for patients with early scoliosis to prevent curve progression of the spine 供早期脊柱側彎患者矯正姿勢的彈性腰帶，以防止脊柱進一步彎曲 |

| Faculty/ Department 院系 | Inventor 發明者 | Technology/Design 科技/設計 | Licensee 獲授權機構 | Benefits/Applications 優點/應用 |
|---|--|---|---|--|
| 6 Interdisciplinary Division of Biomedical Engineering (renamed as Department of Biomedical Engineering) 生物醫學工程跨領域學部 (已改名為生物醫學工程學系) | Dr Hu Xiao-ling 胡曉翎博士 | Electromyography (EMG)-Driven Neuromuscular Electrical Stimulation Upper Limb Rehabilitation System 肌電及神經肌肉電刺激上肢康復系統 | Biohop Medical Technologies Co., Ltd. 廣州博厚醫療技術有限公司 | Integrating EMG-driven motion with neuromuscular electrical stimulation for enhancing neuroplasticity recovery of the upper limbs in stroke patients 結合肌電驅動的運動與神經肌肉電刺激，增強中風患者恢復上肢的神經可塑性 |
| 7 Interdisciplinary Division of Biomedical Engineering (renamed as Department of Biomedical Engineering) and Industrial Centre 生物醫學工程跨領域學部 (已改名為生物醫學工程學系)和工業中心 | Prof. Raymond Tong, Ms Corinna Ockenfeld and Mr Pang Man-kit 湯啟宇教授、Corinna Ockenfeld 女士及彭民傑先生 | Exoskeleton robotic devices for hand, hip, knee and ankle rehabilitation 有助手骨、腕關節、膝關節和踝關節康復的外骨骼機械人裝置 | Rehab-Robotic Co., Ltd. 復康機器人技術有限公司 | Exoskeletal robotic systems using an electromyography signalling mechanism for hand, hip, knee and ankle rehabilitation in stroke patients 應用肌電信號機制的外骨骼機械人系統，用於中風患者的手、腕、膝和踝關節的康復療程 |

Projects licensed to PolyU-supported start-ups 授權予理大支持的初創企業

| Faculty/ Department 院系 | Inventor 發明者 | Technology/Design 科技/設計 | Licensee 獲授權機構 | Benefits/Applications 優點/應用 |
|---|---------------------------|--|---|--|
| Department of Computing 電子計算學系 | Mr Lau Shiu-fung 劉肇豐先生 | Wheelman | Mr Lau Shiu-fung 劉肇豐先生 | A barrier-free digital map providing information for wheelchair users and the elderly on locating accessible facilities 提供無障礙數碼地圖，為輪椅使用者和長者提供無障礙設施的資料 |
| Department of Industrial and Systems Engineering 工業及系統工程學系 | Mr Andre Hui 許岸然先生 | Pokeguide | Pokeguide Ltd. | Mobile app for locating preferred MTR train compartments and doors to reduce travel time to desired MTR station exits 使用手機應用程式設定目標列車車卡和車門，以縮短前往目標地鐵站出口的所需時間 |
| Department of Industrial and Systems Engineering 工業及系統工程學系 | Dr Tsui Chi-pong 崔智邦博士 | Spray drying based technology for preparing super-hydrophobic coating materials 以噴霧乾燥技術生產超疏水塗層的材料 | Simnovate Technology (HK) Co., Ltd. 芯創科技(香港)有限公司 | A special super-hydrophobic coating formulated with self-cleaning and solar radiation shielding properties 配製獨特兼具有自行清潔和阻擋太陽輻射性能的超疏水塗層 |

| Faculty/ Department 院系 | Inventor 發明者 | Technology/Design 科技/設計 | Licensee 獲授權機構 | Benefits/Applications 優點/應用 |
|---|---|--|--|--|
| Department of Industrial and Systems Engineering 工業及系統工程學系 | Mr Kok Wai-hoong 郭威鴻先生 | Ceramic interposers for enhanced heat dissipation of 3D integrated circuits 用於增強三維集成電路散熱能力的陶瓷插件 | Electro Precision Technology Sdn. Bhd. | A novel interposer material for improved heat dissipation on 3D integrated circuits 用於改良三維集成電路散熱能力的新穎中介層材料 |
| Interdisciplinary Division of Biomedical Engineering (renamed as Department of Biomedical Engineering) 生物醫學工程跨領域學部 (已改名為生物醫學工程學系) | Mr Wong Chun-yiu 黃俊耀先生 | Running-assistive equipment for the visually impaired 視力障礙跑步輔助設備 | Vivid Sense Ltd. 全感有限公司 | A wearable assistive device for visually impaired athletes when jogging 視覺障礙運動員跑步時可穿戴的輔助裝置 |
| Interdisciplinary Division of Biomedical Engineering (renamed as Department of Biomedical Engineering) and Industrial Centre 生物醫學工程跨領域學部 (已改名為生物醫學工程學系)和工業中心 | Prof. Raymond Tong 湯啟宇教授 | Intention-driven exoskeleton robotic hand for stroke rehabilitation 用於中風患者康復治療的意向驅動外骨骼機械手 | Zunosaki Ltd. 頂尖頭腦有限公司 | Rehabilitation services with exoskeletal robotic system for stroke patients 中風患者外骨骼機械系統康復服務 |
| School of Design 設計學院 | Ms Kwok Cheuk-lam 郭卓霖女士 | Joy Sports Alliance 動樂同盟 | Teal Design HK Ltd. | Training materials for students with special education needs to improve their sensory integration and physical movement 供有特殊教育需要的學生使用的培訓材料，可改善同學感官整合和身體動作 |
| School of Design 設計學院 | Ms Sunhera Machimanda Cariappa Sunhera Machimanda Cariappa女士 | Anti-Sexual Harassment Educational Toolkit 反性騷擾教育工具包 | Feel Good Design | A toolkit for educating and training both employers and employees to prevent sexual harassment in the workplace 用於教育和培訓僱主和僱員的工具包，以防止工作場所性騷擾事件 |
| School of Design 設計學院 | Mr Chan Wai-sang 陳煒生先生 | One Citi Car | One Moving Ltd. 壹移動有限公司 | A modular concept car design approach 模塊化概念車設計方法 |
| School of Design 設計學院 | Ms Yau Sau-mei 邱秀美女士 | Typography system for dyslexia readers 供讀寫障礙者使用的排版系統 | Easiread Ltd. | A highly adaptive personalised typography system for dyslexia readers 供讀寫障礙人士使用的高度適應性的個人化排版系統 |
| School of Optometry 眼科視光學院 | Prof. To Chi-ho and Prof. Carly Lam 杜嗣河教授及林小燕教授 | Defocus Incorporated Soft Contact (DISC) Lens 光學離焦隱形眼鏡 | Vision Science and Technology Co. Ltd. 視覺科技有限公司 | Contact lens using multi-zone bifocal technology to control myopia progression 採用多區雙焦點技術控制近視加深的隱形眼鏡 |



Project licensed with educational purpose 授權予教育用途的項目

| Faculty/ Department 院系 | Inventor 發明者 | Technology/Design 科技/設計 | Licensee 獲授權機構 | Benefits/Applications 優點/應用 |
|------------------------------|---|---|--|--|
| School of Design 設計學院 | Ms Joyce Yuen and students of the School of Design 阮佩櫻女士及設計學院學生 | Design concept of "New phase of self" and "Undo the internal knots to let me (RainLily) walk with you" 「新階段的妳」和「解開心結，讓我伴你同行」設計概念 | RainLily 風雨蘭 | Promotional materials for RainLily to draw public attention to the issue on supporting the victims of sexual violence 為風雨蘭設計宣傳材料，並引起社會人士對支援性暴力受害者的關注 |
| School of Design 設計學院 | Mr Fung Ho-yin and students of the School of Design 馮浩然先生及設計學院學生 | "Crafthetic 想匠" logo design, product and display concepts 「Crafthetic 想匠」標誌設計、產品和陳列概念 | The Boys' and Girls' Clubs Association of Hong Kong 香港小童群益會 | Logo, product and display concept for a training programme to develop the skills of trainees, broaden their horizons and expand their future career path 為一個培訓計劃設計標誌、產品及陳列概念，訓練學員技能、擴闊他們的視野和拓展他們未來的事業 |
| School of Design 設計學院 | Mr Fung Ho-yin and students of the School of Design 馮浩然先生及設計學院學生 | "Plasolution" branding concept and guidelines 「撲塑時代 Plasolution」品牌概念和指引 | Friends of the Earth (HK) Charity Ltd. 香港地球之友 | A design concept to raise public awareness of plastic pollution, promote reduction of plastic use and encourage people to adopt a simpler lifestyle 創造設計概念以提高公眾對塑料污染的認識，推廣減少使用塑膠，以及鼓勵公眾奉行簡單的生活方式 |
| School of Design 設計學院 | Mr Alex Ho, Mr Calvin Chan and students of the School of Design 何達興先生、陳嘉倫先生及設計學院學生 | "Be yourself", "Be touching" and "Believe your ability" videos 「順其自『研』、動人心『研』和『研』而有信」影片 | Heep Hong Society 協康會 | A series of videos for raising public awareness of autism, clearing misconceptions and promoting the acceptance of autistic people in society 製作一系列影片以提高公眾對自閉症的認識，打破誤解，並提高社會對自閉症患者的接受程度 |
| School of Design 設計學院 | Mr Stefan Sonntag and students of the School of Design Stefan Sonntag 先生及設計學院學生 | "Close the Tap, Save a Smile" video 「Close the Tap, Save a Smile」影片 | Colgate-Palmolive Asia Pacific Limited | A video to describe how water is wasted when brushing teeth and alternative ways that water can be used to benefit society 製作影片描述刷牙過程如何浪費食水，並建議善用食水讓社會受益 |

INNOVATIONS WITH IMPACT

創新發明 貢獻殊深

PolyU has long supported community development through knowledge transfer. The University has further included 'impact' as a component of the Research Assessment Exercise to encourage faculties, departments and faculty staff to give more thought in this direction.

理大一直透過知識轉移支援社區發展，並進一步將項目的影響納入研究評估活動的一部分，以鼓勵各院系、部門和學術人員循這方向努力。

Advancing technology 創新科技

University Research Facility in 3D Printing

Launched in April 2017, PolyU's University Research Facility in 3D Printing is the first institutional level 3D printing research centre among Hong Kong universities, supporting education, research and university-industry collaboration. PolyU also collaborated with Queen Elizabeth Hospital to develop a Transcatheter Aortic Valve Implantation (TAVI) simulation training model using 3D printing technology. Doctors and nurses can now be trained to conduct transcatheter cardiac interventions using the training model. Together with other 3D biomedical models, the system allows medical staff to conduct better training, pre-operative planning and rehearsal, and patient education, especially for complex surgical procedures.

三維打印技術中心實驗室

2017年4月，理大成立三維打印技術中心實驗室，這是香港高等院校首個支援教學、研究及校企合作的三維打印設施。理大進一步與伊利沙伯醫院合作，把三維打印技術應用於研發導管主動脈瓣植入模擬培訓系統，讓醫生和護士可以使用該系統進行導管主動脈心臟干預的培訓。此系統配合其他三維生物醫學模型，可為醫療人員提供更好的培訓、手術前的規劃和練習及病人教育，對複雜的外科手術尤其有用。

Compound eye high definition 3D imaging system

Adopting microlens arrays composed of over 10,000 microlenses (with lens diameters down to 0.05mm), this technology mimics a fly's compound eyes to acquire depth information of a scene in a single light-field snapshot. The collected depth information allows images to be refocused

高清三維成像複眼透鏡系統

這項技術仿效蒼蠅複眼的生理構造，採用由超過一萬個小透鏡(每塊鏡片直徑只有0.05毫米)組成的微透鏡陣列，可以透過單一光視場快照獲景深資料。根據這些景深資料便可聚焦或製作三維影像。



or constructed in 3D from a plain shot. The technology can be broadly used in imaging applications such as Augmented Reality/Virtual Reality and high precision metrology. It has been licensed to a Hong Kong-based company for developing 3D video capture and broadcast systems.

這項技術可廣泛用於成像應用範疇，例如擴增實境/虛擬實境及高精度量度。這項技術已授權予香港一家公司以發展三維影片和廣播系統。

Sustainability development 可持續發展

Green transport system

With Tung Chung targeted as a major new town development initiative, its sustainable development has become a widespread concern. PolyU researchers conducted a study on a green transport system serving Tung Chung's internal travel demands. The findings and recommendations for an eco-friendly transport system were then presented to various stakeholders. If the green transport system is implemented, Tung Chung's air quality will be improved and greenhouse gas emissions reduced, creating a positive impact for the environment and human health as well as serving as a model for other new towns.

綠色交通系統

隨着東涌被納入主要新城鎮發展計劃，其可持續發展備受各界關注。理大科研人員進行一項研究，以綠色交通系統來應對東涌區內的交通需求，並向各持分者介紹該環保交通系統的研究結果和建議。若綠色交通系統有效執行，將可改善東涌的空氣質素、減少溫室氣體排放，並為環境和居民健康帶來正面影響，更可成為其他新市鎮的模範。



Natural ventilation and noise reduction technology

Statutory regulations in Hong Kong require apartments in new residential buildings to adopt natural ventilation and sound insulation in line with the guidelines. In response, PolyU researchers have developed natural ventilation-enabling sound insulation devices for use on residential building facades, including acoustic balconies, double layer ventilation windows (known as plenum windows) and plenum balconies. These devices have been installed in a number of local buildings and achieved excellent performance.

Waterworks sludge put to good use

About 50 tonnes of dewatered sludge generated from water treatment plants is added to Hong Kong's landfill sites every day. Working with the Water Supplies Department, PolyU explored the potential use of waterworks sludge as a construction fill material. If the pilot recycling project is proven feasible, not only will loading to landfill be reduced, the community will benefit from a long-term solution for waste recycling, resources management and environmental pollution control.

天然通風與減低噪音的技術

香港法例規定新建的住宅單位需採用符合準則的天然通風和隔音設施。因此理大的科研人員研發了安裝於樓宇外牆、具有自然通風功能的隔音設備，包括減音露台、雙層通風窗戶和通風露台。這些設備已安裝於本地多座樓宇，並發揮良好功能。

善用污泥

香港每天有大約五十噸來自濾水廠的脫水污泥被倒進堆填區。理大與水務署合作研究以污泥作為建築填料的可行性。如果這項試驗回收計劃證實可行，不僅可減低堆填區的負荷，更名為社區提供長遠的廢物回收、資源管理和控制環境污染的解決方案。

Healthy Living 健康生活

12 Radiation-free scoliosis assessment

PolyU researchers have developed Scolioscan, a radiation-free imaging device for scoliosis assessment using 3D ultrasound imaging. Unlike X-rays, Scolioscan allows healthcare workers to detect scoliosis at an early stage and avoids unnecessary treatments for patients with stable spinal angles. It also allows close follow-up monitoring and easy evaluation of treatment outcomes, while providing a unique method for researching the origin of scoliosis and the development of new treatment modalities. A license has been granted to apply this technology in a commercial product. In Hong Kong alone, over 2,000 children have been scanned using Scolioscan. The device has been installed in various hospitals across Hong Kong, Macau, the Chinese mainland and the Netherlands for further clinical trials and research.

無輻射評估脊柱側彎

理大科研人員利用三維超聲波成像技術研發出Scolioscan系統以評估脊柱側彎。Scolioscan有別於X光，它可讓醫護人員發現早期的脊柱側彎，避免對脊柱角度穩定的患者進行不必要的治療。它還可以提供密切的後續監測，容易評估治療結果，並為脊柱側彎成因研究及新的治療模式提供獨特方法。此技術已獲授權應用於商業產品，單在香港已有超過二千名兒童曾使用Scolioscan進行評估。這套儀器亦已安裝於香港、澳門、中國內地和荷蘭的醫院，以作進一步的臨床試驗和研究。

Food Hygiene Standard Certification System

The Food Safety and Technology Research Centre of PolyU has developed a Food Hygiene Standard Certification System (FHSCS) for domestic catering establishments that wish to attain a certain food hygiene standard. The system is based on Hazard Analysis and Critical Control Point principles and is applicable to food and beverage establishments where food is prepared and served for human consumption, such as restaurants and canteens.

Collaborating with PolyU, a globally-recognised certifying body takes up the auditing work for interested applicants. Every qualified catering establishment will be issued a certification mark recognising its attainment of quality assurance according to the FHSCS. The scheme thus provides a practical way to enhance the hygiene quality of small and medium catering establishments.

食品衛生標準認證系統

理大食物安全及科技研究中心開發了一套食品衛生標準認證系統，供希望達致一定的食品衛生標準的本地餐飲機構使用。該系統採用危害分析和關鍵控制點的原則，適用於準備食物供應人類食用和提供服務的餐飲機構，例如餐廳和飯堂。

一家國際公認的核證機構與理大進行合作，負責審核有意申請認證的企業。合格的餐飲設施將獲發認證標誌，證明具有獲食品衛生標準認證系統認可的質量保證。這項計劃為提高中小型餐飲機構的衛生水平提供了切實可行的方法。

SPEARHEADING REGIONAL ENTREPRENEURSHIP DEVELOPMENT

帶領區內創業發展

Seed funding

In collaboration with local and regional partners, PolyU has established different funding programmes for start-ups. Up to now, PolyU has supported more than 200 start-up ventures through funding schemes and provided over 60,000 hours of training to participants. Outcomes of the supported start-ups have been positive, with around 75% still in active operation. Some start-ups have also secured further funding and investment support amounting to more than HK\$180 million and won over 100 international and regional awards.

In 2017, PolyU launched the new Student Entrepreneurial Proof-of-Concept Fund to promote student innovations and commercialisation projects. As of 30 June 2017, 13 projects had been funded to develop prototypes and carry out market validation of product concepts.

Experiential entrepreneurial education

During the year, the University established the Global Student Network of Entrepreneurship together with nine other institutions from the Chinese mainland, Taiwan, Singapore and Israel, to provide a global platform connecting students for entrepreneurship learning.

Through the Institute for Entrepreneurship, PolyU makes resources available to develop practical entrepreneurship training programmes and activities for students, graduates and research staff with different focuses and learning objectives.

種子基金

理大與本地及區內的夥伴合作，成立了不同的初創企業資助計劃，至今已透過資助計劃支持二百多家初創企業，並為計劃參加者提供了超過六萬小時的培訓。初創企業的發展非常良好，其中大約百分之七十五仍在活躍運作，當中不少更獲得進一步的資助和投資，總額超過一億八千萬港元，並獲頒超過一百多個國際和地區獎項。

2017年，理大推出全新的學生創業概念驗證計劃，支持學生的創新發明和商業化項目。截至2017年6月30日，已為十三個項目提供資助，用以開發原型和對產品概念進行市場驗證。

體驗式創業教育

年內，理大與中國內地、台灣、新加坡和以色列等地的九所院校成立環球學生創業網絡，提供一個全球學習平台，方便學生聯繫，一起學習創業。

理大透過企業發展院投放資源，為學生、畢業生和科研人員舉辦不同重點和學習目標的創業實務培訓計劃和活動，包括



Regular programmes include entrepreneurship boot camps in Hong Kong and Shanghai to help students formulate their start-up ideas and business proposals. In addition, an online entrepreneurship learning platform, The Practicum, has also been established to extend classroom knowledge.

定期在香港和上海舉辦的創業培訓營，幫助學生制訂創業理念和商業計劃。此外，大學亦建立在線創業學習平台 The Practicum，協助學生將課堂所學廣泛應用。

13 Building an entrepreneurial community

To develop an entrepreneurial ambience on campus, the University established the PolyU InnoHub in March 2017 as a dedicated space for facilitating co-creation and co-incubation activities. The InnoHub leverages PolyU's research expertise, student creativity, alumni network and external resources through partnerships with investors, incubators and higher education institutions, both locally and in the region. The InnoHub also serves as a place for exchange and joint collaboration among regional partners.

建立創業社群

為進一步發展校園的創業氛圍，理大於2017年3月成立了一個共創空間——理大 InnoHub，透過結合大學的研究專長、學生創意、校友網絡和外界資源，與本地和區內的投資者、企業孵化器和高等院校合作，促進共同創作和共同孵化。此外，InnoHub也是區內合作夥伴間交流和合作的空間。