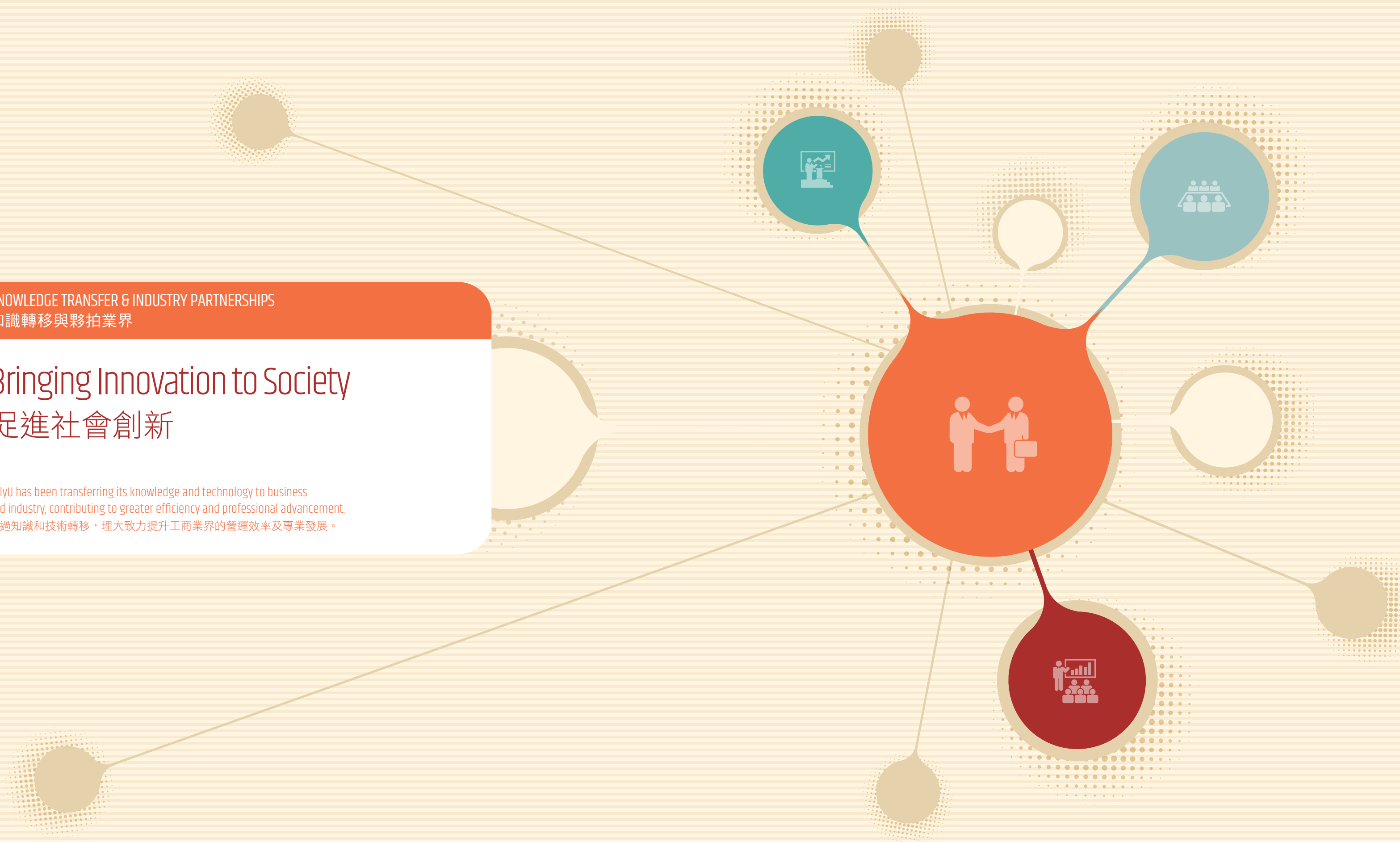


KNOWLEDGE TRANSFER & INDUSTRY PARTNERSHIPS
知識轉移與夥伴業界

Bringing Innovation to Society 促進社會創新

PolyU has been transferring its knowledge and technology to business and industry, contributing to greater efficiency and professional advancement. 透過知識和技術轉移，理大致力提升工商業界的營運效率及專業發展。



SHARING TECHNOLOGY THAT BENEFITS INDUSTRY AND SOCIETY

共享科技 造福業界社會

PolyU Technology and Consultancy Company Limited (PTeC), the ISO9001-accredited commercial arm of the University, focuses on knowledge transfer through consultancy projects and licensing arrangements for the benefit of industry and society at large. For PTeC, 2013/14 was yet another record-breaking year with 567 new consultancy projects undertaken and close to HK\$128 million in turnover achieved.

擁有ISO9001認證的理大科技及顧問有限公司透過顧問服務及技術授權，致力推動知識轉移，以貢獻業界及社會。科技及顧問有限公司年內業績再創高峰，為客戶提供五百六十七項顧問服務，總業務收入接近一億二千八百萬港元。



2013/14 Project highlights 年度亮點項目

POLYU FACULTY AND DEPARTMENT 理大院系	CLIENT 服務對象	CONSULTANCY PROJECT 顧問項目	IMPACT / CONTRIBUTIONS 影響 / 貢獻
Department of Applied Biology and Chemical Technology 應用生物及化學科技學系	Ocean Growth Ltd. 海生有限公司	To apply ozone and biotechnology at Lai Chi Wo for the development of a fish hatchery, biosecurity control and conservation 將臭氧及生物科技應用於荔枝窩，以發展魚類養殖、生物安全監控及生態保育	Promotes fisheries and helps restore the biodiversity of Hong Kong's waters and ecosystem 推動漁業及協助恢復香港水域及生態的生物多樣性
Department of Civil and Environmental Engineering 土木工程學系	Highways Department, HKSAR Government 香港特別行政區政府路政署	To study and propose self-compacting materials for trench backfilling after completion of road and pavement excavation works 研究及建議可用於道路開挖工程後回填溝道的自充填物料	Assists the industry to improve the efficiency of the backfilling process, cut public costs incurred due to rework of trench backfilling; provides smoother surfaces for road users 協助業界改善回填工序的效率、減少溝道需要重新回填帶來的公共開支，以及為道路使用者提供平坦的道路
Department of Electrical Engineering 電機工程學系	Hong Kong Productivity Council 香港生產力促進局	To design a prototype and study the feasibility of developing a plug-in hybrid light bus suitable for Hong Kong 設計及開發一輛專門適合香港使用的插電式混合動力輕型小巴	Provides a foundation for further studies on hybrid light buses 為進一步研究混合動力小巴奠下基礎
Department of Mechanical Engineering 機械工程學系	Oilfield company 油田服務公司	To undertake analysis, design and optimization of vibration protection for guidance units and Silica-gel Structure Packaging structures in logging-while-drilling systems 加表模塊振動保護力學分析及矽膠材料封裝結構優化設計研究	Ensures innovative and effective vibration isolation technologies can be developed for the protection of sensitive instruments and electronic units from destructive vibration sources 新型而有效的振動隔離技術，以保護敏感儀器和電路元件，免受惡劣振動的破壞
Interdisciplinary Division of Engineering 生物醫學工程跨領域學部	Telefield Medical Imaging Ltd. [subsidiary company of Telefield International (Holdings) Ltd.] 中慧醫學成像有限公司 (中慧國際控股有限公司附屬公司)	Professional advice and support for function enhancement of the Scolioscan System, an innovative scoliosis assessment system using 3-D ultrasound imaging 為創新的三維超聲脊柱側彎素描系統提供專業意見及支援優化系統功能	Provides radiation-free accurate assessment of spine deformity using 3-D ultrasound imaging; traditional method requires multiple radioactive x-ray examinations 傳統檢查方法運用多次X光成像來測量，新系統提供無輻射且準確的三維超聲脊柱側彎評估
Public Policy Research Institute 公共政策研究所	Macao Foundation 澳門基金會	Study on the diversity and integration of the Greater Pearl River Delta Metropolitan Area 大珠三角都會區的多元與融合研究	Provides in-depth insight on the development of the Greater Pearl River Delta Metropolitan Area 提供對大珠三角都會區發展的深入分析
School of Design 設計學院	Eyeware design and manufacturing company 眼鏡設計及製造商	To conduct research on the dimensions and shapes of the Chinese faceform, including the provision of advice on manufacturing methods and construction of a proprietary female and male head scanning system 對中國人的面部形態及尺寸進行研究，包括對獨家製造的男女頭形掃描系統及其生產方法提供意見	Helps the client enhance eyewear designs to suit Asian facial forms 協助客戶優化眼鏡設計，以切合亞洲人的面部形態
School of Hotel and Tourism Management 酒店及旅遊業管理學院	Policy Research Office, Macao SAR Government 澳門特別行政區政府政策研究室	To provide periodical forecasts of tourism demand and analyses of tourism carrying capacity in the region 對當地的旅遊需求量及旅客承载力定期進行預測	Benefits tourism policy makers and practitioners by facilitating effective long-term planning 有助旅遊政策制定者及從業員制定有效及長遠的規劃

A LEADER IN INTELLECTUAL PROPERTY

領先知識產權管理

According to the National Academy of Inventors, PolyU ranked first among higher educational institutes in Hong Kong in the number of U.S. patents granted during 2012 and 2013. In 2013 alone, PolyU was ranked 67th worldwide with 30 patents granted.

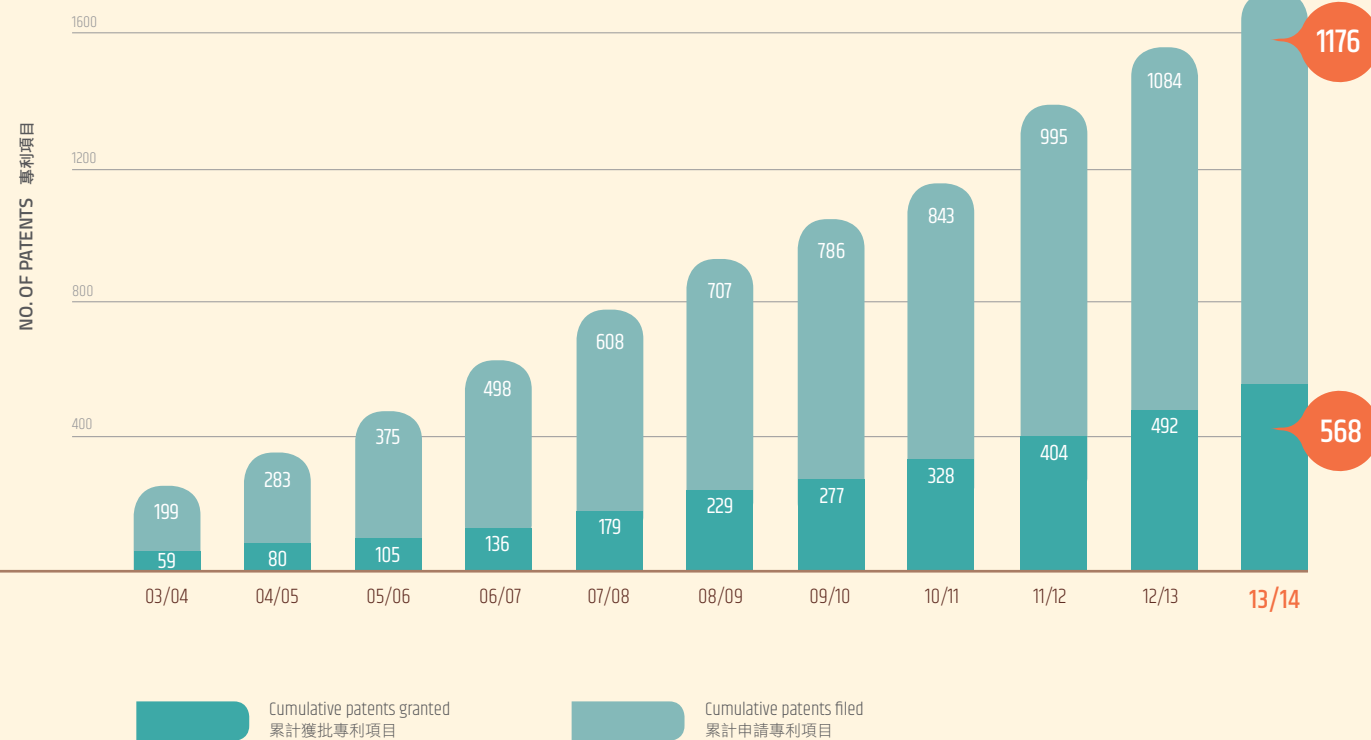
As of June 2014, PolyU had obtained 568 cumulative patents and filed 1,176, making it a leader among local tertiary institutions in this aspect. In 2013/14, a total of 68 patent and trademark applications were filed and 52 were granted.

根據National Academy of Inventors的統計，理大在2012及2013年分別獲批的美國專利數量，均在香港高等教育院校中排名第一。在2013年，理大獲批的專利達三十項，全球排名第六十七。

截至2014年6月，大學擁有累計獲批專利五百六十八項，而已申請專利則有一千一百七十六項，足證理大在這方面領先本地其他院校。2013/14年，理大共提交了六十八項專利及商標註冊申請，並有五十二項獲批。

Cumulative patents filed and granted

累計申請及獲批專利項目



CREATING IMPACT THROUGH LICENSING

技術授權 影響深遠

Knowledge transfer through licensing enables partner companies to leverage PolyU's rich portfolio of technologies to enhance their competitiveness and create new products. In 2013/14, the Institute for Entrepreneurship entered into over 40 licensing agreements / Memoranda of Understanding/non-disclosure agreements for PolyU's proprietary knowledge in areas such as textile technology, engineering, health science and design.

透過技術授權進行知識轉移，夥伴機構可以利用理大的科研技術來提升競爭力和開發新產品。在2013/14年，理大企業發展院與業界簽訂逾四十項技術授權協定 / 備忘錄 / 保密協議，以轉移理大的專有知識，涉及範疇包括紡織技術、工程、醫療科技及設計等。

Licensed Technologies and Designs

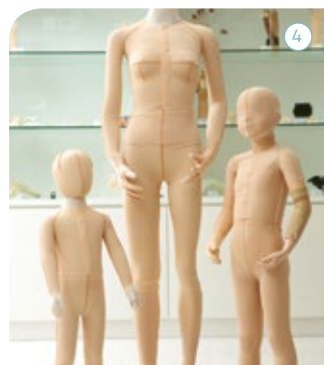
授權技術及設計

POLYU FACULTY AND DEPARTMENT 理大院系	INVENTOR 發明者	TECHNOLOGY 技術	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. William Chan and Prof. Larry Chow 陳德恒教授及周銘祥教授	Epigallocatechin Gallate (EGCG) Derivatives for Inhibiting Proteasome 抑制蛋白酶體的表沒食子兒茶素沒食子酸酯衍生物	Viteava Pharmaceuticals Inc.	EGCG derivatives of peracetate ester-containing tea polyphenols, a potential prodrug with enhanced stability and potency in inhibiting proteasomes 表沒食子兒茶素沒食子酸酯衍生物內含兒茶素，是一種能穩定及高效抑制蛋白酶體的潛在前驅藥
Department of Applied Biology and Chemical Technology 應用生物及化學科技學系	Dr Wong Ka-hing 黃家興博士	Pleurotus Tuber-Regium Polysaccharide Functionalized Nano-Selenium Hydrosol with Anti-Tumour Activity 利用虎奶菇多糖製備抗腫瘤活性的功能性納米硒水溶膠	New Team International Enterprise Limited 新匯國際企業有限公司	Preparation of stable selenium nanoparticles using mushroom polysaccharide-protein complexes for developing end products such as functional foods and potential new drugs for cancer chemoprevention 利用蘑菇多糖蛋白複合物製備穩定的納米硒，以開發功能性食品及防癌的新型化學藥物
Department of Applied Physics 應用物理學系	Dr Wang Yu Mr Yong Ze-hui 王雨博士 雍澤輝先生	Low Radiation Mobile Phone Antenna 低輻射手提電話天線	Shenzhen Huayu Zhixun Technology Co., Ltd. 深圳市華宇知訊科技有限公司	Significant reduction of mobile phone radiation through specific antenna design 採用特定的天線設計，顯著減低手機輻射



Licensed Technologies and Designs 授權技術及設計

4	POLYU FACULTY AND DEPARTMENT 理大院系	INVENTOR 發明者	TECHNOLOGY 技術	LICENSEE 獲授權機構	BENEFITS / APPLICATIONS 優點 / 應用
	Department of Rehabilitation Sciences 康復治療科學系	Prof. Cecilia Li-Tsang 李曾慧平教授	Smart Pressure Monitored Suit 智能壓力衣	Champion Rehabilitation Ltd. and Chengdu No.2 People's Hospital 創理復康有限公司及成都市第二人民醫院	Customized production of functional pressure garments essential for effective and accelerated scar healing 定制生產功能性壓力衣，有效加快疤痕癒合
	Department of Rehabilitation Sciences 康復治療科學系	Prof. David Man 文偉光教授	Virtual Reality Based Vocational Training System 以虛擬現實為基礎的職業培訓系統	C2 Innovations & Research Ltd. 思穎創新科研有限公司	Enhancement of cognitive functioning for improved work skills and self-efficacy for subjects suffering cognitive limitations and work resettlement issues 促進有認知障礙及工作再適應問題人士的認知功能，以改善工作技能及自我效能感
	Institute of Textiles and Clothing 紡織及製衣學系	Dr Allan Chan 陳志駒博士	Robotic Mannequin "i. Dummy" (More on p.81) 智慧人體模型 (詳見第81頁)	Winswin Ltd. 永奕有限公司	An all-in-one mannequin that can flexibly change its shape and configuration to eliminate the need for multiple mannequins in garment design and production 集多功能於一身的人體模型，可靈活地改變其形狀及規格，省卻服裝設計及生產所需的多種人體模型
	Institute of Textiles and Clothing 紡織及製衣學系	Dr Ameersing Luximon Ameersing Luximon 博士	Knowledge-Based Foot Scanning System 知識型足部掃描系統	Cloudolp Analytics Co., Ltd. 深圳市雲智信息系統有限公司	Creation of 3D digital foot profiles to facilitate virtual footwear fitting for online customers 創建三維足部數碼輪廓，可用作虛擬試鞋，方便網上購物
	Institute of Textiles and Clothing 紡織及製衣學系	Prof. Tao Xiao-ming 陶肖明教授	Fabric Sensor and its Manufacturing Method 具感應功能的面料及其製造方法	Advanpro Ltd. 安潤普有限公司	A flexible fabric sensor with accurate measurement resolution on strain and pressure over a large operation range that opens up many possibilities for healthcare and medical applications 能感應應變和壓力的織物傳感器，可應用於大變形量的準確測量，為保健及醫療應用帶來新穎的應變感應功能
5	Institute of Textiles and Clothing 紡織及製衣學系	Prof. Tao Xiao-ming 陶肖明教授	Electronic Control System for Nu-Torque Singles Ring Yarn Technology 扭妥環錠紡紗技術的電子控制系統	Shenzhen DoMore Textile Technology Co., Ltd. 深圳市渡茂紡織技術有限公司	A novel electronic control system that allows for easy spinning of Nu-torque singles ring yarn using conventional spinning machines 為使用傳統紡織機紡織扭妥環錠紗引入全新電子控制系統
	Institute of Textiles and Clothing 紡織及製衣學系	Dr Joanne Yip and Prof. Marcus Yuen 葉曉雲博士及袁進華教授	Socks with Antifungal Microcapsules for Treatment of Tinea Pedis ("Hygienic Socks") 採用微膠囊技術研發的衛生襪	Vincent Medical Manufacturing Co., Ltd. 永勝醫療製品有限公司	Effective treatment of tinea pedis (athlete's foot) with micro-encapsulated materials in socks 附有微膠囊的襪子可為足癬(香港腳)帶來有效療法
	School of Design 設計學院	Mr Rémi Leclerc and students Rémi Leclerc 先生及學生	Toy designs 玩具設計	4M Industrial Development Ltd. 科文實業有限公司	Ingenious educational toy designs manufactured with recycled materials 利用可循環再用物料創作精巧及具教育意義的玩具
	School of Design 設計學院	Students 學生	Memo pad and T-shirt design 便條紙及T恤設計	Heep Hong Society 協康會	Support for non-profit activities that benefit children with special needs 支持讓特殊需要兒童受惠的非牟利活動
6	School of Design 設計學院	Students 學生	Animation, booklet and exhibition design 動畫、小冊子及展覽攤位設計	Heep Hong Society 協康會	Support for non-profit activities that benefit children with special needs 支持讓特殊需要兒童受惠的非牟利活動



PARTNERSHIPS WITH FRUITFUL ACHIEVEMENTS 攜手合作 共享成果

Throughout the year, PolyU partnered with various institutions and companies in the private sector to create many innovations that benefit society.

年內，理大與各大機構及業界建立合作夥伴關係，共同創新科技，造福社會。

Camera Pointing System

During the year, PolyU continues to work with the China Academy of Space Technology. Used in the nation's successful Chang'e-3 lunar landing mission in December 2013, the novel Camera Pointing System allowed the lander's camera to swivel 120 degrees vertically and 350 degrees horizontally for optimal viewing and image capturing under the extreme conditions of the moon's surface. (More on p.63)

相機指向機構系統

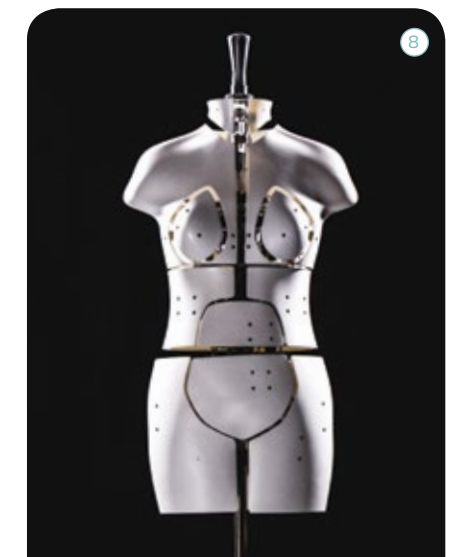
年內，理大繼續與中國太空技術研究院合作，在2013年12月的國家探月工程中，先進的相機指向系統隨嫦娥三號成功登月。此系統可讓攝影機垂直轉動一百二十度及橫向轉動三百五十度，以便在月球表面的極端環境中捕捉最清晰的影像。(詳見第63頁)

Intelligent i.Dummy robot mannequin

The award-winning i.Dummy is an all-in-one mannequin that can change its shape and configuration to eliminate the need for multiple mannequins in garment design and production. Through this technology, a single i.Dummy can transform itself into various sizes and dimensions, including user-defined configurations. The device is now enabling the apparel and garment industry to streamline its operations, adding agility to the design-production cycle while achieving effective savings in cost and space.

智慧機械人體模型 "i.Dummy"

獲獎發明 "i.Dummy" 是集多功能於一身的人體模型，其形狀及規格可改變，因此服裝設計及生產時無需使用多種人體模型。"i.Dummy" 可轉換成各種大小及尺寸的人體模型，包括用戶自定的規格。它簡化了服裝行業的運作工序，亦增加設計過程以至整個生產週期的靈活性，同時有效減低成本和所需空間。





Recycling of marine mud to produce building blocks

9

PolyU collaborated with Environmental Protection Bureau of Macao SAR Government to research the recycling and reuse of Macao's marine mud for the production of building blocks. A new manufacturing technique was developed to produce bricks with very satisfactory physical properties.

Self-sustainable magnetoelectric sensors for fault detection

PolyU developed compact (only about 2 cm long) and self-sustainable magnetoelectric sensors that enable live detection without additional power supplies. One local power supply company has planned in-situ installation of these novel sensors, while similar tests are being run with electrical traction systems on trains in both Hong Kong and Singapore to detect early electrical faults and avoid critical downtime.

Controlling myopia progression through optical interventions

10

PolyU partnered with Johnson & Johnson Vision Care, Inc. to evaluate a new soft contact lens designed to slow myopia progression in children from 7 to 12 years of age compared with spectacle lens wearers. The study involves monitoring individual myopic progression cases over a period of three years, with the objective of enhancing the industry's knowledge of treating myopia and discovering possible preventive measures.

Equipping teachers with education skills

PolyU has helped develop secondary school teachers' English competency in teaching. To date, some 400 local teachers have benefited from the project. A similar project was also conducted for Putonghua teaching methods that will equip teachers with the knowledge and effective strategies required for developing a school-based curriculum.



海泥回收生產建築用磚

理大與澳門特別行政區政府環境保護局合作研究，回收及使用澳門的海泥來生產建築用磚。大學開發了一項嶄新的生產技術，製造出物理性能良好的磚塊。

供故障檢測用的可自持式磁電傳感器

理大研發的可自持式磁電傳感器不但細小（只有約兩厘米長），而且能進行實時偵測，並無需額外供電。一家本地電力公司已計劃安裝這款全新的傳感器，而類似的測試亦應用於香港及新加坡的鐵路車輛電力牽引系統中，以及早發現電力故障，避免引起服務停頓。

通過視光矯正控制近視加深

理大與 Johnson & Johnson Vision Care, Inc 合作，評估一款針對七至十二歲兒童而設計的新款軟性隱形眼鏡，比對傳統有框眼鏡延緩近視加深的功效。研究追蹤使用者三年內近視度數的變化，結果可提升業界對近視治療及預防的知識。

增強教師的教學技巧

理大協助提升中學教師使用英語教學的能力，並培訓了約四百名本地教師。另一類似項目是針對普通話教學方法，旨在讓教師具備適當的知識和有效的策略，以便發展校本課程。

PROMOTING "DO WELL DO GOOD" ENTREPRENEURSHIP 宣揚「創富創善」的企業家精神

Micro Fund Scheme supports budding entrepreneurs

Since its inception in 2011, the PolyU Micro Fund Scheme has provided support to 66 startup projects selected from 770 proposals submitted by over 1,600 participants. More than 50 of these projects are still in operation, representing a survival rate of around 80%. In addition, about 50% of the beneficiaries have secured over HK\$22 million in aggregate investments or incubation/financial support for a "return" of more than five times the HK\$3.9 million disbursed to them under the Scheme.

Micro Fund awardees have produced innovative products or services that have won a total of 24 awards, including 12 awards in 2013/14. Among the awards received were the Grand Champion of the Hong Kong Social Enterprise Challenge 2013, Best ICT Startup Awards and GS1 Hong Kong RFID award, to name just a few.

微型基金計劃支援新晉企業家

自2011年成立以來，理大微型基金計劃從一千六百多名申請人提交的七百七十份計劃書中，選出了六十六個創業項目提供資助。當中超過五十個項目至今仍繼續營運，企業存活率高達百分之八十。此外，逾百分之五十的受益項目籌集了超過二千二百萬港元的額外投資或培育資金/財務支援。這「回報」是本計劃發放之三百九十萬港元的五倍。

微型基金受助人憑藉創新產品或服務，獲得共二十四個獎項，包括在2013/14年度取得的十二項殊榮，如香港社會企業挑戰賽2013總冠軍、最佳資訊科技初創企業獎及GS1香港無線射頻識別大獎等。





STEFU-PolyU China Entrepreneurship Fund

In collaboration with the Shanghai Technology Entrepreneurship Foundation for Graduates (STEFU), PolyU established a parallel cross-border fund in support of young graduate entrepreneurs on the Chinese mainland. The Fund, which was launched in 2013, has awarded RMB 200,000 to each of 20 projects selected out of 86 applications.

Advancing entrepreneurship education

With the objective of instilling the “do well do good” entrepreneurship spirit among young people, the Institute for Entrepreneurship launched the entrepreneurial leadership programme, entrepreneurship training camp and developed an online entrepreneurship learning tool and portal, StartHub@PolyU, in 2013/14.

Over the years, the University has also nurtured many “Poly-preneurs”™ — venturesome graduates who have set up their own businesses. This pool of some 600 Poly-preneurs and members of the University’s CEO Club have enthusiastically participated in a variety of developmental and networking activities, as well as entrepreneurship development and mentorship programmes for recipients of the Micro Fund Scheme.

理大專項基金

理大與上海大學生科技創業基金會攜手合作，成立兩地平行配對基金，以支持年輕畢業生到中國內地創業。自2013年成立以來，基金已在八十六份申請中批出二十個項目，每個項目資助人民幣二十萬元。

推動創業教育

為了向年輕人灌輸「創富創善」的創業精神，企業發展院在2013/14年度推出了創業企業研習班、創業訓練營，以及研發創業學習網上工具和平台 – “StartHub@PolyU”。

多年來，理大培育了眾多「理大企業家」，這些畢業生憑著創業精神成功創立個人事業。此六百多位理大企業家和理大總裁協會的成員積極參與各類發展和聯誼活動、創業發展計劃，以及專為理大微型基金計劃得獎者而設的輔導計劃。

TOP-LEVEL EDUCATION PROGRAMMES FOR EXECUTIVES

優質行政培訓課程

In 2013/14, the Institute for Entrepreneurship delivered 498 training courses that benefited close to 23,720 participants from both the public and private sectors. The programmes were part of the Institute’s ongoing training for professionals and executives and customized courses for industry associations and enterprises.

Similarly, the Institute of Advanced Executive Education (IAEE) of PolyU launched new programmes for the public and customized courses for corporate clients. During the year, IAEE developed three new executive master degree programmes. One of these, the Executive Master in Real Estate Finance, is the first interdisciplinary executive master’s degree programme to be launched in Hong Kong.

Two new series of workshops for the public were launched in 2013/14, namely, the Senior Executives Series and High Potential Series. The former featured Professors of Practice who provided insights on a variety of topical and innovative leadership and management methodologies while the latter focused on skills-building relevant to professionals and company executives.

In addition, a new Executive Diploma in Accountancy was accredited by the Hong Kong Institute of Certified Public Accountants, which became the basis for a public programme as well as a bespoke conversion programme for two of the Big Four accounting firms.

企業發展院一直為專業人士、行政人員及工商機構提供度身訂造的培訓服務。2013/14年度，企業發展院推出了四百九十八項課程，為近二萬三千七百二十名來自公營和私營機構的人士提供培訓。

此外，理大高級管理深造學院（簡稱「理大高院」）亦開設全新公開課程系列，為企業提供度身訂造的培訓課程。年內，理大高院更率先推出香港首個跨學科的高級管理人員房地產金融碩士課程，是其重點籌辦的三個高層人員碩士學位課程之一。

理大高院於2013/14年度開辦了兩個公開課程系列，分別是「高管人才培訓系列」及「潛力發展系列」。「高管人才培訓系列」由學院的專業應用教授任教，課程涵蓋時下有關領導才能及管理學最熱門及創新的多元化議題。而「潛力發展系列」則協助專業人士及行政人員掌握實務策略及技巧。

此外，學院新一屆的會計行政文憑課程獲香港會計師公會認可。學院更以此文憑課程為基礎，開設相關的公開課程，並為四大會計師行其中兩所的行政人員提供特製轉制及會計入門的核心培訓。

