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澳大新語 U Magazine

澳大和澳門的20年

UM and Macao over the Past 20 Years



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《澳大新語》為澳門大學官方刊物，每年出版兩期，旨在報導大學在教學、科研、服務等領域的最新發展動向。
UMagazine is a biannual publication of the University of Macau. It aims to provide information on the latest developments of the University in teaching, research and service.



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EDITOR'S WORDS

2019年，注定是值得紀念的一年。

今年，適逢澳門回歸20週年，又是《澳大新語》創刊10週年的紀念。對澳大而言，過去20年最重要的里程碑，是在國家和澳門特區政府的支持和關懷下，獲撥地在廣東省橫琴島上建設新校園。新校園不僅是粵澳聯合開發橫琴島「先行先試」的項目，也是澳門高等教育的創舉，對澳門高等教育發展起到重要作用。新校園也為澳大提供更優越的辦學環境實踐辦學理念，令研究、教學、師資力量、人才培養等都有翻天覆地的變化。

20年前，澳門還是一座寂寂無聞的小城，今天已發展成為國際大都會，而澳大也由二千多名的學生擴展到現在一萬多名學生的規模，師生高端學術期刊論文發表數目翻了10倍，不少成果更引起國際學術界的注目。澳大培養的校友也遍佈澳門和世界各地，為推動社會發展作出了不可估量的貢獻。

今期《澳大新語》特別製作《澳大和澳門的20年》專題特輯，從學術研究、全球策略、人才培養、校園規劃等不同範疇回顧澳大過去20年取得的矚目成果，以及探討相關領域實施的新策略，如何配合未來社會對高等教育人才的需要。另外，我們還訪問了多位跟澳門特區共成長的老師和學生，分享他們見證澳大和澳門飛躍變化的故事。

2019 is a remarkable year.

This year, Macao celebrates the 20th anniversary of the its handover to China, while our *UMagazine* has come to its tenth year. Of the many milestones in the development of the University of Macau (UM) over the past two decades, the most important one was its relocation to the new campus on Hengqin Island, Guangdong province, which was made possible only with the support of the central and Macao SAR governments. The cross-border new campus project was not only one of the earliest examples of Guangdong and Macao's joint development of Hengqin Island; it also presented a creative solution for higher education expansion in Macao. Thanks to the new campus, UM is now in a much more favourable position to realise its educational ideals, with enormous progress already visible in teaching and research.

20 years ago, Macao was just a small obscure town. Today, it has become a vibrant, cosmopolitan city. The changes experienced by the university during the same period have been just as extraordinary. The number of students has surged from around 2,000 to over 10,000. The number of high-quality academic journal articles published by UM scholars has increased tenfold, with many research outcomes recognised by the international academic community. In Macao and across the world, UM alumni are making invaluable contributions to move our society forward.

The theme of this issue of *UMagazine* is 'UM and Macao over the Past 20 Years'. It takes us through UM's achievements in teaching, research, global affairs, campus development, and other areas. We also look at the university's new strategies designed to meet the future demand for professionals in various fields. On a more personal note, some faculty members and students share with us their personal stories and their thoughts on Macao's tremendous changes over the past two decades.

We hope you enjoy reading this issue of *UMagazine*, as much as we have enjoyed producing it for you.

張惠琴 Katrina Cheong

目錄

CONTENTS

2019年 | 總第21期
Autumn/Winter 2019 | Issue 21



- | | | | | | |
|----|-----------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------|
| 06 | 澳大和澳門的20年
UM and Macao over the Past 20 Years | 44 | 環境育人配合大學發展
Creating an Environment to Support the University's Development | 57 | 林玉鳳：在我的人生裡，
很多機會都是澳大給的
Agnes Lam: My Life Is Filled with Opportunities Given by UM |
| 20 | 辦學新定位與國際接軌
Internationalisation through New Positioning | | 師生感受
UM Members' Thoughts | 60 | 黃輝：「中葡通」協助澳門回歸過渡
Wong Fai: PCT Facilitates the Transition of Macao |
| 26 | 新研究佈局順應世界潮流
New Research Blueprint to Meet Global Trends | 51 | 黎寧：使命感讓我回「家」
Rose Lai: My Sense of Mission Urges Me to Return to UM | 63 | 麥沛然：
在澳大學習和研究芯片20年
Elvis Mak: 20 Years of Studying Microchips at UM |
| 32 | 全球策略提升國際聲譽
Enhancing UM's International Reputation with a New Global Strategy | 54 | Augusto Teixeira Garcia：
為澳門培養法律人才
Augusto Teixeira Garcia: Nurturing Legal Professionals for Macao | 66 | 在澳大讀書的「回歸寶寶」
UM Students Born in 1999 |
| 38 | 推全人教育配合澳門發展
Supporting Macao's Development with Whole-person Education | | | | |

澳大和澳門的20年

UM and Macao over the Past 20 Years



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澳門1999年回歸以來，經濟飛躍發展，澳門高等教育也因應社會發展而不斷提升辦學規模和質素，以配合澳門特區政府的人才培養策略。澳門大學作為澳門唯一一所國際化綜合性公立大學，與澳門的發展一脈相連，肩負為澳門培養尖端人才的使命，並以先進研究驅動社會發展。過去20年，澳門和澳大都經歷了翻天覆地的變化，締造了良好的基礎。展望未來，澳大將如何在新的使命和發展之下創造更卓越的成績？

Since its handover to China in 1999, Macao has experienced rapid economic growth, which in turn has led to an increased demand for professionals in various fields. To keep pace with the rapid change, higher education institutions in Macao have been trying to recruit more students and enhance their quality of education. The University of Macau (UM) is no exception. As the only public comprehensive university in Macao, UM is committed to contributing to the local and international communities through high-quality education and cutting-edge research. Both Macao and UM have experienced a sea change over the past 20 years. Looking ahead, how can UM build on this foundation to scale new heights and fulfil its new mission?

回歸後大學迅速發展

澳門回歸之後，是澳大迅速發展的新階段。澳門需要有一所現代化和國際化的大學，不僅滿足澳門的發展需要，更要與國際高等教育的發展模式接軌。有見及此，澳大開始研究修章，立法會也於2006年通過新的《澳門大學法律制度》及《澳門大學章程》，讓澳大可以實施國際化現代大學管理模式。

2009年，澳門回歸10年，是澳大發展里程碑的重要一年。這年，國家批准澳大在廣東省橫琴島建設新校區，並授權澳門特區依照澳門特區法律實施管轄，讓澳大有更優越的空間實踐辦學理念。同年，澳大發展基金會成立，以增強大學在國際上的競爭力，這是澳門特區政府支持高等教育發展的另一新嘗試，體現社會各界對澳大和澳門高等教育發展的大力支持。



2009年（上圖）和2019年（下圖）的澳大新校園
UM's new campus in 2009 (upper) and 2019 (lower)

Fast Development Since Macao's Handover to China

Macao's handover to China ushered in a new era for UM, where the university experienced rapid development. At the time, Macao needed a modern and internationalised university, not only to meet the needs of a rapidly developing economy, but also to bring Macao in line with the global trends of higher education. In view of this, UM revised its Charter. In 2006, the Legislative Assembly of Macao passed the new Judicial Regime of the University of Macau and the new Charter of the University of Macau. The revised versions of these two documents enabled UM to implement a modern governance model in line with international practices.

The year 2009 marked the tenth anniversary of Macao's return to China. It also represented an important milestone in UM's history, because it was in this year that the central government approved the construction of a new UM campus on Hengqin Island, Guangdong province, and authorised Macao to exercise jurisdiction over the new campus. This unprecedented bill turned UM's 'new campus dream' into a reality and allowed the university to pursue its educational ideals on a much larger campus. In the same year, the University of Macau Development Foundation (UMDF) was established, with the aim of enhancing UM's global competitiveness. The UMDF represented a new endeavour on the part of the local government to support higher education development, and demonstrates the unreserved support of UM felt by people from all walks of society.

It took a little over three years for the new campus design, construction, and relocation to be completed. The new campus was inaugurated on 5 November 2013. An unprecedented project in Macao's higher education history, the new campus provides an excellent environment for learning and teaching. Upon relocation to the new campus, the university built Asia's largest residential college system to facilitate the implementation of whole-person education.

20 years ago, UM only had 2,865 students. Now, the number exceeds 10,000. UM alumni have become valuable members of society in different parts of the world. Most judicial officers, judges, prosecutors, attorneys, secondary school principals and teachers in Macao, as well as over one third of the members of the Legislative Assembly, are UM alumni.

新校園於2013年11月5日啟用，前後僅用了三年多時間完成設計、建築及搬遷，這是澳門高等教育史上的一個創舉，也為澳大提供了優越的辦學環境，並建立亞洲最具規模的住宿式書院系統，實踐全人教育。

20年前，澳大只有2,865名學生，今年學生已超過一萬人，校友遍佈澳門和全球。澳門大多數司法官員、法官、檢察官、律師、中學校長、主任、老師、教育工作者，以及三分之一以上的立法會議員等都是澳大校友，海外學生畢業回國後有擔任部長、高等法院法官、法學院教授等要職。

研究方面，澳大在科技和人文社科領域取得長足進步。根據國際論文資料庫科睿唯安Web of Science (WOS)顯示，澳大學者的高端學術期刊論文發表數目由2009年的140多篇增至2018年的1,500多篇，發表量翻了10倍；論文引用次數由2000年的30次增至2018年約24,400次，增加了800倍。工程學、化學、藥理學與毒理學、計算機科學、臨床醫學及社會科學總論這六大學科進入基本科學指標資料庫 (ESI) 前1%。

宋永華校長表示，無論是人才培養還是科學研究產出，澳大已經在全國、亞洲和國際上具有相當影響力，「總體來說，澳大與澳門過去20年的發展，可以說是經歷翻天覆地的變化。我們形成了特色鮮明的國際化辦學優勢，成就是以往難以想像的。」

配合澳門特區政府推動科技創新

澳大等高校於2018年向國家主席習近平呈交了一封聯名信。習主席其後回信並作出重要指示，希望澳門高校培養更多愛國愛澳人才，創造更多科技成果，助力澳門經濟適度多元可持續發展，助力粵港澳大灣區建設。

澳大一直注重學術研究和科技創新，在國家科技部及澳門特區政府的支持下，

On the front of scientific research, UM has also made significant progress in the fields of science and technology, humanities, and social sciences. According to statistics from the Web of Science, the number of papers published by UM scholars in renowned academic journals increased from around 140 in 2009 to over 1,500 in 2018, which is more than a ten-fold increase. The citation frequency of UM scholars' published papers increased from 30 in 2000 to around 24,400 in 2018, an increase of 800 times. The university is now among the top 1 per cent in Essential Sciences Indicators (ESI) rankings in six subjects, namely Engineering, Chemistry, Pharmacology & Toxicology, Computer Science, Clinical Medicine, and Social Sciences, General.

According to Rector Yonghua Song, UM has become quite influential in China, Asia, and the world, for the quality of its graduates and its research output. He says, 'Overall, both UM and Macao have experienced a sea change over the past 20 years, during which we have developed our distinctive characteristics and unique advantages. It would have been difficult to imagine back then what the university would accomplish in 20 years.'

Supporting the SAR Government's Effort to Promote Technological Innovation

In 2018, UM and several other higher education institutions in Macao submitted a joint letter to President Xi Jinping. President Xi soon sent a reply letter, in which he gave important instructions and expressed his hope for higher education institutions in Macao to produce graduates with a love for China and Macao, and to create more results in science and technology, to support the diversification of Macao's economy and the development of the Guangdong-Hong Kong-Macao Greater Bay Area.

UM has always attached great importance to academic research and innovation in science and technology. With the support of the Ministry of Science and Technology and the Macao government, the university has established three state key laboratories, focused on microelectronics, Chinese medicine, and Internet of Things applications for smart cities, respectively. The cutting-edge research conducted by the three labs has reached world-class standards. In addition, UM has established some new faculties and institutes to expand



澳大在1999年舉行迎回歸座談會
UM holds a seminar on Macao's handover to China in 1999

先後成立了三間國家重點實驗室，分別聚焦微電子、中醫藥和智慧城市物聯網，其先進研究已達世界一流標準。此外，澳大還建立了健康科學學院、應用物理及材料工程研究院、微電子研究院、認知與腦科學研究中心、人工智能研究中心、珠海澳大科技研究院等，拓展相關科技的前沿研究及發展，協力壯大澳門及國家的研究力量。

宋校長表示，除了不斷提升研究質量，澳大亦不懈推動師生促進知識轉移，推進科研成果的產業化和應用，目前積極協助科研團隊及相關部門紮實推進科技創新，爭取參與更多與國家級科研平台相關的建設，並協助科研團隊申請和參與粵港澳大灣區科技創新項目及申請跨境科研資金。

推動澳門高等教育國際化

為加速推動澳門高等教育國際化，澳大不斷拓展與海外大學的網絡，搭建更多國際合作研究平台，近年竭力提升葡語教學和中葡雙語人才培養的水平，並積極與葡語國家保持緊密聯繫，以及配合國家和澳門特區的政策，為來自「一帶一路」沿線國家和葡語國家的優秀學生

the frontiers of science and technology and to enhance the research capacity of Macao and China. These new institutes include the Faculty of Health Sciences, Institute of Applied Physics and Materials Engineering, Institute of Microelectronics, Centre for Cognitive and Brain Sciences, Centre for Artificial Intelligence, and Zhuhai UM Science & Technology Research Institute.

According to Rector Song, in addition to continuously enhancing the quality of research, UM also spares no effort to promote knowledge transfer and commercialisation of research results. For instance, it actively supports its researchers to carry out innovative research projects, to participate in the establishment of national scientific research platforms, and to apply for cross-border research grants and research projects in the Greater Bay Area.

Promoting the Internationalisation of Higher Education in Macao

To promote the internationalisation of higher education in Macao, UM is actively expanding its overseas network and building new platforms for international collaborative research. In recent years, the university has worked hard to enhance the quality of its Portuguese language education to produce high-calibre Chinese-Portuguese bilingual professionals. To achieve this end, it maintains close contact with universities in Portuguese-speaking countries. Moreover, it attracts outstanding students from Portuguese-speaking countries and countries covered in the Belt and Road Initiative with scholarships and other forms of sponsorship. Through these strategies, the university hopes to contribute to the Belt and Road Initiative and the Macao government's plan to develop the city into a world centre for tourism and leisure and a service platform for trade between China and Portuguese-speaking countries and a base for cultural exchange and cooperation.

In addition to creating an international environment for teaching and learning and enhancing its international reputation, UM actively seeks to enhance the global competitiveness of its academic programmes. For instance, four programmes offered by the university's Faculty of Science and Technology have received full accreditation from the Hong Kong Institution of Engineers (HKIE).



2009年澳大師生慶祝澳門回歸10週年暨新校園奠基
UM members celebrate the tenth anniversary of the Macao SAR and the groundbreaking ceremony for the new campus in 2009

提供獎學金或資助，鼓勵他們到澳大升學，為「一帶一路」及「一中心、一平台、一基地」建設作出貢獻。

澳大不僅為學生創建國際化辦學環境、積極提升國際聲譽，還不斷提升課程的國際競爭力。澳大課程獲國際認可，例如科技學院的土木工程理學士學位課程、計算機科學理學士學位課程、電機及電腦工程理學士學位課程和機電工程理學士學位課程，均通過香港工程師學會的全面學術評鑑，其中三個課程更獲《華盛頓協議》成員承認。工商管理學院獲得國際商學院聯合會認證，為澳門第一所榮獲該會認證的商學院。工商管理學院的理學士學位（會計學）課程獲澳洲、英國和香港等地的會計師公會認證，畢業生可於相關的專業考試獲豁免多數試卷。

經過多年努力，澳大教研實力穩步上揚，近年更晉身「泰晤士高等教育世界大學排名」和「Quacquarelli Symonds (QS) 世界大學排名」前400，亞洲大學排名42，國際化發展第九。

They are the Bachelor of Science in Civil Engineering, the Bachelor of Science in Computer Science, the Bachelor of Science in Electrical and Computer Engineering, and the Bachelor of Science in Electromechanical Engineering. Three of these programmes have also been recognised by members of the Washington Accord. The Faculty of Business Administration has earned accreditation from the prestigious Association to Advance Collegiate Schools of Business, becoming the first business school in Macao to be accredited by the association. The Bachelor of Science in Accounting programme offered by FBA has been accredited by CPA Australia, the Association of International Accountants in the United Kingdom, and the Hong Kong Institute of Certified Public Accountants. Graduates of these programmes are exempt from most professional level examinations administered by these associations.

Through years of effort, UM's research capacity is steadily increasing. In recent years, it is ranked among the top 400 universities in both the Times Higher Education (THE) World University Rankings and the Quacquarelli Symonds (QS) World University Rankings. In Asia, it is ranked No 42. In terms of international outlook, it is ranked No 9 in the THE World University Rankings.

1999–2019澳門大學里程碑
UM Milestones from 1999 to 2019

1999年12月20日澳門回歸，
澳門特別行政區成立。

20 December 1999: The sovereignty over Macao was handed over to the People's Republic of China. The Macao Special Administrative Region was established.



1999年發佈全球首部中葡雙語發聲詞典「中葡通」。

1999:PCT, the world's first Chinese-Portuguese bilingual audio dictionary, was launched.

2001年澳門特區政府重組澳大校董會，開展修章工作，逐步實踐國際化管治模式。

2001: The Macao SAR government restructured the University Council and initiated charter revision in order to facilitate the implementation of an international mode of governance at the university.



2006年澳門立法會通過《澳門大學法律制度》。澳門特區行政長官頒佈新的《澳門大學章程》。根據章程，校董會為大學最高合議機關。

2006: The Legislative Assembly of Macao passed the new Judicial Regime of the University of Macau, and the chief executive of Macao SAR promulgated the new Charter of the University of Macau. According to the Charter, the University Council is the highest collegial organ of the university.



1999年「校長推薦入學計劃」啟動，經澳門各中學校長推薦的優秀應屆畢業生可申請免試入讀澳大。

1999: The Principals' Recommended Admission Scheme was launched. Under this scheme, outstanding local students recommended by their principals are eligible to apply for admission into UM with exemption from the entrance examination.

1999年舉行澳門特區成立後首場畢業典禮暨榮譽博士學位頒授典禮，由首任行政長官兼澳大校監及校董會主席何厚鏞（左）、時任校長姚偉彬（右）主持。

1999: Edmund Ho Hau-wah (left), the first chief executive of the Macao SAR and chancellor of UM, and then UM Rector Lu Vai Pan (right), officiated at the university's first graduation ceremony and honorary doctorate conferment ceremony after Macao's handover.



2002年成立英語中心、中華醫藥研究所。

2002: The English Language Centre and the Institute of Chinese Medical Sciences were established.

2003年成立工程研究及檢測中心、博彩研究所。

2003: The Centre for Engineering Research and Testing and the Institute for the Study of Commercial Gaming were established.

2007年制訂《澳門大學十年發展規劃》，首次提出覓地擴展校園。

2007: UM formulated the Ten-Year Development Strategy, which includes the university's vision for a new campus.



2008年首次經全球招聘大學領導團隊。

2008: UM globally recruited its top management for the first time.

2009年6月全國人民代表大會常務委員會通過《關於授權澳門特別行政區對設在橫琴島的澳門大學新校區實施管轄的決定》。

June 2009: The National People's Congress Standing Committee adopted a bill to authorise the Macao SAR to exercise jurisdiction over the new UM campus on Hengqin Island.



2009年12月20日時任國家主席胡錦濤主持新校園奠基儀式。

20 December 2009: Then President Hu Jintao officiated at the groundbreaking ceremony for the new campus.



2009年成立澳門大學發展基金會、榮譽學院。

2009: The University of Macau Development Foundation and the Honours College were established.

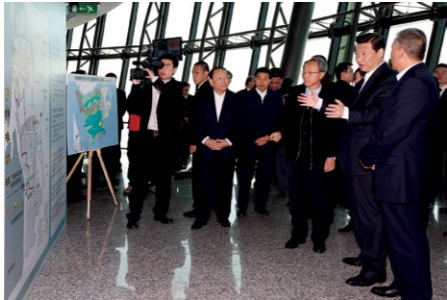
2011年成立珠海澳大科技研究院、亞太經濟與管理研究所。

2011: Zhuhai UM Science and Technology Research Institute and the Asia-Pacific Academy of Economics and Management were established.



2009年1月時任國家副主席習近平在澳門宣佈中央開發廣東省橫琴島，位於橫琴島的新校園項目正式啟動。

2009: During his visit to Macao, then Vice President Xi Jinping announced the central government's decision to develop Hengqin Island. The new campus project officially kicked off.



2009年12月20日時任國務委員劉延東在新校園奠基儀式上致辭，希望澳大建成一所世界一流的大學，要有一流的設施、一流的教師，培養一流的人才，創造一流的成果。

20 December 2009: Then State Councillor Liu Yandong expressed hope at the new campus groundbreaking ceremony that UM would develop into a world-class university with world-class facilities, world-class faculty members, world-class graduates, and world-class achievements.



2010年成立東亞書院、珍禧書院。

2010: Two residential colleges, the East Asia College and the Pearl Jubilee College, were established.

2011年獲國家批准設立模擬與混合信號超大規模集成電路國家重點實驗室及中藥質量研究國家重點實驗室。

2011: UM received approval from the central government to establish two state key laboratories, namely the State Key Laboratory of Analog and Mixed-Signal VLSI, and the State Key Laboratory of Quality Research in Chinese Medicine.



2013年成立健康科學學院。

2013: The Faculty of Health Sciences was established.

2013年7月20日新校園啟用，依照澳門特別行政區法律實施管轄。

20 July 2013: The new campus became operational and came under the jurisdiction of the Macao SAR.



2014年8月順利完成遷校，2014/2015學年正式在新校園上課。

August 2014: UM completed relocation to the new campus and began to conduct all classes on the new campus in the 2014/2015 academic year.



2014年12月20日國家主席習近平到澳大考察。

20 December 2014: President Xi Jinping visited UM.



2016年獲澳門特區政府頒授「教育功績勳章」，為首間獲此殊榮的高等院校。

2016: UM received the Medal of Merit-Education from the Macao SAR government, becoming the first tertiary institution in Macao to receive this honour.

2017年成立中國歷史文化中心、中葡雙語教學暨培訓中心、協同創新研究所。

2017: The Centre for Chinese History and Culture, the Chinese-Portuguese Bilingual Teaching and Training Centre, and the Institute of Collaborative Innovation were established.



2013年11月5日時任國務院副總理汪洋主持新校園啟用儀式。

5 November 2013: Then Vice Premier of the State Council Wang Yang officiated at the inauguration ceremony for the new campus.



2014年成立曹光彪書院、鄭裕彤書院、蔡繼有書院、呂志和書院、滿珍紀念書院、紹邦書院。

2014: Six more residential colleges were established. They are Chao Kuang Piu College, Cheng Yu Tung College, Choi Kai Yau College, Lui Che Woo College, Moon Chun Memorial College, and Shiu Pong College.



2014年成立應用物理及材料工程研究所。

2014: The Institute of Applied Physics and Materials Engineering was established.

2016年成立張崑崙書院、馬萬祺羅柏心書院。

2016: Two new residential colleges, namely Cheong Kun Lun College, and Ma Man Kei and Lo Pak Sam College, were established.

2017年澳門特區行政長官兼澳大校監崔世安（中）、社會文化司司長譚俊榮（左二）、校董會主席林金城（右二）和時任校長趙偉（左一）等主持畢業典禮。

2017: UM Chancellor and Macao SAR Chief Executive Chui Sai On (middle), Secretary for Social Affairs and Culture Tam Chon Weng (2nd from left), UM University Council Chair Lam Kam Seng (2nd from right), and then Rector Wei Zhao (1st from left) officiated at the university's graduation ceremony.





2018年國家教育部贈送「博雅之壁」雕塑，喻意弘揚中華優秀傳統文化和美德。
2018: The Ministry of Education presented a gift to UM, 'The Wall of Great Wisdom' sculpture, hoping that UM would promote traditional Chinese culture and virtues.

2018年成立「澳門中小學生人文社科教育基地」及「澳門中小學生科技實踐基地」。
2018: The Macao Base for Primary & Secondary Education in Humanities & Social Sciences and the Macao Base for Primary & Secondary STEM Education were established.

2018年成立憲法與基本法研究中心、孔子學院、微電子研究院。
2018: The Centre for Constitutional Law and Basic Law Studies, the Confucius Institute, and the Institute of Microelectronics were established.



2018年國家主席習近平給澳大等高校回信，指示澳門高校培養更多愛國愛澳人才，創造更多科技成果，助力澳門經濟適度多元可持續發展，助力粵港澳大灣區建設。

2019年協同創新研究院轄下成立認知與腦科學研究中心、人工智能研究中心、數據科學研究中心及創新創業中心。
2019: The Centre for Cognitive and Brain Sciences, the Centre for Artificial Intelligence, the Centre for Data Science, and the Centre for Innovation and Entrepreneurship were established under the Institute of Collaborative Innovation.

2019年成立人文社科高等研究院、區域海洋研究中心。
2019: The Institute of Advanced Studies in Humanities and Social Sciences, and a research centre for regional oceanography, were established.



2018年校董會主席林金城（左二）、澳門特區行政長官兼校監崔世安（中）和校長宋永華（右二）等主持畢業典禮。
2018: University Council Chair Lam Kam Seng (2nd from left), Macao SAR Chief Executive Chui Sai On (middle), and UM Rector Yonghua Song (2nd from right) officiated at the university's graduation ceremony.



2018年獲國家批准設立第三所國家重點實驗室：智慧城市物聯網國家重點實驗室。
2018: UM received approval from the central government to establish its third state key laboratory, namely the State Key Laboratory of Internet of Things for Smart City.



2018: President Xi Jinping sent a reply letter in response to a joint letter submitted by representatives of higher education institutions in Macao. In the letter, President Xi expressed his hope that higher education institutions in Macao would nurture more professionals who love the country and Macao and produce more achievements in science and technology, so as to help promote economic diversification and sustainable development of Macao as well as the development of the Guangdong-Hong Kong-Macao Greater Bay Area.

2019年工商管理學院成為澳門第一所獲國際商學院聯合會認證的商學院。創辦工商管理博士學位課程（DBA）。
2019: The Faculty of Business Administration earned accreditation from the Association to Advance Collegiate Schools of Business, becoming the first business school in Macao to be accredited by the association. In the same year, the faculty launched a Doctor of Business Administration programme.

2019年崇文樓揭幕，匯聚中國歷史文化中心、澳門研究中心、孔子學院、中葡雙語教學暨培訓中心、藝術設計中心，以及澳門中小學生人文社科教育基地等文化教研單位。
2019: The Cultural Building was inaugurated. The building houses the Centre for Chinese History and Culture, the Centre for Macau Studies, the Confucius Institute, the Chinese-Portuguese Bilingual Teaching and Training Centre, the Centre for Arts and Design, and the Macao Base for Primary & Secondary Education in Humanities & Social Sciences.





辦學新定位與國際接軌

Internationalisation through New Positioning

文 | 張愛華 · 圖 | 編輯部
Chinese Text | Ella Cheong · Photo | Editorial Board

澳門大學因應澳門的發展需要，加上高等教育的發展趨勢，制定新的發展定位：立足澳門，建設澳門；融入灣區，面向全國，服務國家；走向世界，貢獻人類。澳大校長宋永華表示，澳大的辦學理念不僅要滿足澳門的發展需要，更要與國際高等教育的發展模式接軌，以迎接粵港澳大灣區以至全球發展帶來的挑戰和機遇。

In view of the rapid development of Macao and the new trends of higher education, the University of Macau (UM) has positioned itself as a university that is rooted in Macao to help develop the city, integrated with the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) to serve the country, and geared towards the world to make a greater contribution. According to UM Rector Yonghua Song, UM's development strategies are designed to not only meet the needs of Macao, but also to conform with international practices, in order to be better prepared for the opportunities and challenges brought about by the development of the GBA and the rest of the world.

立足澳門 建設澳門

作為澳門唯一一所國際化綜合性公立大學，澳大必須以「立足澳門、建設澳門」為核心，展開各項人才培養工作，配合澳門對各類型人才的需要。在此核心理念下，澳大推出「澳大濠江學者」計劃，培養本地年輕學者、吸引高端人才留澳發展。因應社會發展增設及完善課程，配合澳門建設「世界旅遊休閒中心」，包括成立「綜合度假村及旅遊管理學系」，提升澳大在培養旅遊休閒人才中的作用，支持澳門打造大灣區旅遊教育培訓基地。

Rooted in Macao to Help Develop the City

UM is the only public comprehensive international university in Macao. Its talent development strategies revolve around its commitment to supporting the city's development. To fulfil this mission, the university has initiated various programmes for nurturing professionals in different fields. For instance, the university has launched a Macao Fellow Programme to nurture young scholars from Macao and to encourage qualified residents to pursue career development in Macao. Also, the university has established the Department of Integrated Resort and Tourism Management to support the government's effort to develop the city into a tourism education and training base in the GBA.



宋永華校長
UM Rector Yonghua Song

澳大也加大力度提升葡語教學和培養中葡雙語人才，助力澳門打造「中國與葡語國家商貿合作服務平台」，包括成立憲法與基本法研究中心、與北京大學合作建立國家人文社科研究基地、新增「葡語專才推薦計劃」、開辦五年制法學士學位課程（中葡雙語授課）等，全面培養「發揮澳門所長、滿足國家所需」的中葡雙語人才。

澳大也全力構建平台，助力澳門打造「以中華文化為主流、多元文化共存的交流合作基地」，例如開辦中國歷史文化碩士學位課程和國際漢語課程及師資培訓。新啟用的崇文樓匯聚了澳大富有實力的文教單位，包括中國歷史文化中心、澳門研究中心、孔子學院、中葡雙語教學暨培訓中心、藝術設計中心，弘揚中華文化。

UM has also intensified its efforts to train Portuguese language teachers and Chinese-Portuguese bilingual professionals to support Macao's development into a service platform for trade cooperation between China and Portuguese-speaking countries. For instance, the university has established the Centre for Constitutional Law and Basic Law Studies and the Macao Base for Primary & Secondary Education in Humanities & Social Sciences (the latter being a collaborative project with Peking University). It has also launched the Chinese and Portuguese Bilingual Talent Nurturing Scheme and the Bachelor of Law programme, which is a five-year day-time programme conducted in Chinese and Portuguese. These measures aim to make maximum use of Macao's strengths and meet the growing demand for Chinese-Portuguese bilingual professionals in China.

UM also vigorously supports Macao's development into a base for cultural exchange and collaboration, where Chinese culture is the predominant component and a variety of other cultures co-exist in harmony. To this end, the university has launched a master's degree programme in Chinese history and culture, Chinese language courses for international students, and teacher training programmes for language instructors. It has also inaugurated a new Cultural Building, which houses the Centre for Chinese History and Culture, Centre for Macau Studies, Confucius Institute, Chinese-Portuguese Bilingual Teaching and Training Centre, and Centre for Arts and Design, all of which are strong cultural or teaching units at UM. Together, they provide strong support to Macao's efforts to disseminate traditional Chinese culture.

The two new education bases, namely the Macao Base for Primary and Secondary Education in Humanities and Social Sciences, and the Macao Base for Primary and Secondary STEM Education, represent UM's effort to support basic education in Macao. In addition, UM's Faculty of Education conducts the triannual Programme for International Student Assessment (PISA), which provides reference for the SAR government to formulate education policies suited to the city's development.

One of UM's missions is to serve the local community through scientific research. The university has initiated research studies on issues that are of interest to the local society, such as responsible gaming, testing for civil engineering, and macroeconomic forecasts, in order to



左上：澳大與清華大學簽署聯合培養博士後合作協定
右上：澳大與愛丁堡大學簽合作備忘錄
左下：第一屆中國與葡語國家高校校長論壇在澳大舉辦
右下：崇文樓匯聚澳大富有實力的文教單位

Upper left: UM and Tsinghua University sign a collaboration agreement on postdoctoral training
Upper right: UM and the University of Edinburgh sign a collaboration agreement
Lower left: UM hosts the first forum for heads of higher education institutions in China and Portuguese-speaking countries
Lower right: The Cultural Building houses various cultural and teaching units at UM

新成立的「澳門中小學生人文社科教育基地」和「澳門中小學生科技實踐基地」發揮了澳大為澳門培養人才的基礎平台作用。教育學院負責在澳門開展三年一度的「學生能力國際評估計劃」，讓特區政府藉此制訂適合地區發展的教育政策。

以研究服務社會是大學的使命之一。針對澳門的需要，澳大開展了眾多研究項目，包括負責任博彩、土木工程測檢、澳門宏觀經濟預測，為本地社會、政府和研究者提供重要參考。在醫療和衛生領域，澳大力開展中醫藥、腫瘤精準醫療、生殖發育及衰老、轉化醫學和藥

supply data for the local community, the government, and researchers. UM has also initiated research studies related to medical sciences and health sciences, in the areas of Chinese medical sciences, precision medicine for cancer treatment, reproduction, development and ageing, as well as translational medicine, in order to enhance the overall health of Macao residents. In addition, UM has spared no effort to promote the study of the various aspects of Macao, including its history, society, law, education, and business. The research data and theoretical analyses from these studies will provide the basis for policymaking to improve residents' livelihood and cultural life.

物開發等方面的研究，提升澳門人的健康水平。另外，澳大一直不遺餘力推動在文史、社會、法律、教育、商學各領域的澳門研究，為提升澳門文化精神生活和促進本地社會福祉，提供實證數據及學理分析，作為文化及民生政策的學術基礎。

融入灣區 服務國家

《粵港澳大灣區發展規劃綱要》就高等教育發展有明確的目標和指引。配合大灣區發展戰略，澳大致力成為「廣州－深圳－香港－澳門」科技創新走廊的重要節點和大灣區西岸的科技創新高地。

大灣區發展為澳大帶來重大機遇。澳大目前很多研究項目都是大灣區急需的，比如中醫藥、微電子、先進材料、物聯網、大數據、中葡雙語教育。宋校長表示，在國家和地區發展所需的科創新興領域上，澳大正規劃建設更多科研平台，將會抓緊機遇推動成果轉化，力爭在西岸的科技創新中建立核心地位，並且輻射至整個大灣區。

澳大參與多個大灣區高校合作組織，包括與中山大學和香港中文大學牽頭成立粵港澳高校聯盟，已有37間高等院校加盟；與大灣區高校夥伴科研資源共用，推出本科生「2+2」聯合培養項目、博士生聯合培養項目等。宋校長表示，在大灣區協同發展的背景下，澳大將進一步推動與大灣區高校的科研和教育合作，「三地可融合貫通發展，打破地域限制，為澳大進一步發展提供更大空間，尤其是發揮澳大的辦學優勢培養多元化人才，讓學生不僅在澳門做出成績，在大灣區甚至更大範圍也能有所作為。」

走向世界 貢獻人類

澳大最大的優勢就是國際化，是一所充滿多元文化的國際化大學，這是它的先天基因。宋校長表示，澳大現時最重要的考慮是如何把國際化這一優勢發揮得更好。

Integrated with the GBA to Serve the Country

The Outline of the Strategies for the Development of the Guangdong-Hong Kong-Macao Greater Bay Area sets out clear goals and instructions for higher education development. In line with the GBA's development strategy, UM strives to develop itself into a crucial node in the so-called 'Guangzhou-Shenzhen-Hong Kong-Macao Innovation and Technology Corridor', as well as a hub for technological innovation in western GBA.

The GBA has brought many opportunities to UM. For instance, many of the research projects currently being conducted at UM respond to the needs of the GBA, in fields such as Chinese medical sciences, microelectronics, advanced materials, Internet of Things, big data, and Chinese-Portuguese bilingual education. According to Rector Song, UM plans to develop more research platforms in emerging fields to support national and regional development. It will also endeavour to assume a leading role in technological innovation in western GBA and will seek to expand its influence to other parts of the GBA.

UM is currently a member of many university alliances in the GBA, including an alliance of universities in Guangdong, Hong Kong and Macao. Jointly initiated with Sun Yat-sen University and the Chinese University of Hong Kong, this alliance currently has 37 member universities. UM has reached agreements with some partner universities in the GBA to share research resources. It has also launched '2+2' joint undergraduate programmes and joint PhD programmes with other universities. According to Rector Song, against the background of collaborative development in the GBA, UM will further promote collaboration with GBA universities in teaching and research. He says, 'Guangdong, Hong Kong, and Macao should pursue collaborative development that goes beyond the constraints of geographic boundaries, which will create more opportunities for UM. For example, our graduates will have more career options that are not limited to Macao.'

Geared Towards the World to Make a Greater Contribution

UM is an internationalised university whose faculty members and students come from diverse cultural backgrounds. But Rector Song hopes to make the university even more international.



宋永華教授（左二）率團訪問倫敦帝國學院
A delegation led by UM Rector Yonghua Song (2nd from left) visits Imperial College London

澳大國際化和多元文化共存的辦學特色，吸引了近50個國家和地區的學生來求學，為培養具備國際視野及國際競爭力的多元人才創造良好條件。宋校長強調，澳大致力培養的人才須具有家國情懷、國際視野、全球競爭力和世界擔當。澳大近年致力促進與世界高校的聯繫和合作，包括和多所世界頂尖大學合作推出雙聯課程學習計劃及聯合培養博士後項目，其中與倫敦帝國學院、愛丁堡大學、布里斯托大學、多倫多大學、清華大學、巴斯大學、浙江大學、天普大學、里斯本大學高等技術學院等合辦人才培養項目，充分發揮各自的優勢和人才資源，促進科研，攜手培養具國際視野的優秀人才。

宋校長表示，面對大灣區發展的新機遇，澳大憑著其獨具澳門多元文化和國際化的辦學特色，將能為世界作出更卓越的貢獻。

UM students come from nearly 50 countries. The diversity of the student body creates favourable conditions for nurturing professionals with an international perspective and global competitiveness. Rector Song stresses that UM aims to produce graduates with a love for their motherland, a global mindset, international competitiveness, and a desire to make the world a better place. In recent years, UM has spared no effort to foster partnerships with well-known universities both at home and abroad. For instance, UM has launched joint programmes with the following universities: Imperial College London, the University of Edinburgh, the University of Bristol, the University of Toronto, Tsinghua University, University of Bath, Zhejiang University, Temple University, and the University of Lisbon.

Rector Song believes that with the new opportunities created by the development of the GBA, Macao's multicultural environment, and the university's high degree of internalisation, UM will be able to make a greater contribution to the world.



新研究佈局順應世界潮流

New Research Blueprint to Meet Global Trends

文 | 葉浩男 · 圖 | 何杰平、編輯部

Chinese Text | Davis Ip · Photo | Jack Ho & Editorial Board

澳門大學的研究在過去20年突飛猛進，尤其過去10年更創造了驚人的成果。副校長（研究）葛偉表示，為進一步提升整體的研究實力，澳大制定新研究佈局，在原有的優勢學科上，對一些新興學科加以重點發展，並支持人文社科和科技的交叉學科，滿足社會發展的趨勢。

Over the past two decades, the University of Macau (UM) has progressed in leaps and bounds, with particularly remarkable achievements in the past ten years. In order to further enhance the university's research capacity, the management team has drawn a new research blueprint, under which existing disciplines that reflect the university's strengths as well as selected emerging disciplines will be given priority, according to Prof Ge Wei, the university's vice rector for research. Prof Ge adds that in line with global trends, the university will also support interdisciplinary research projects, especially those in the fields of humanities and social sciences as well as science and technology.

研究成果飆升

澳大注重學術研究和科技創新，匯聚了科技和人文社科的大師，研究領域包括癌症、工程與材料、人工智能、中醫藥、微電子、人工智能、認知與腦科學及數據科學、文史、社會、法律、教育、商學等。根據國際論文資料庫科睿唯安Web of Science (WOS)顯示，澳大高端學術期刊論文發表數目由2009年的140多篇增至2018年的1,500多篇，獲引用24,000多次，10年間上升超過10倍；論文獲引用次數由2000年的30次增至2018年約24,400次，增加了800倍。澳大還獲國家批准成立三間國家重點實驗室，眾多研究項目頻獲國際獎項，近年更積極推動產學研項目，以研究服務社會。

葛副校長表示，大學形成以「3+3+3+3」為骨幹的戰略佈局（三間國家重點實驗室、三個重點發展方向、三個跨學科交叉領域、三個人文社科研究平台），同時還集中力量支持既具澳門特色、又符合國際發展潮流的學科方向。

三個重點發展方向

三間國家重點實驗室分別聚焦微電子、中醫藥和智慧城市物聯網。模擬與混合信號超大規模集成電路國家重點實驗室的芯片研究，20年間從零開始到達到世界前沿水平。1995年澳大研發首個微電子芯片，到今天，芯片研究已成為澳大的主要方向之一，成果在國際權威的ISSCC固態電路大會屢創佳績，例如在2019年發表了八篇芯片論文，數量僅次英特爾（Intel），與另外兩所機構並列全球第二；中藥質量研究國家重點實驗室已建成全球頂級中藥創新平台，多次獲得澳門科技特別獎並獲得國家科技進步二等獎；2018年才成立的智慧城市物聯網國家重點實驗室則集中研究物物互聯、網網相通以及物聯網模塊深度融

Surging Research Outcomes

UM attaches great importance to academic research and technological innovation, with a group of dedicated and innovative researchers carrying out cutting-edge research in various areas, including cancer, engineering and materials, artificial intelligence, Chinese medical sciences, microelectronics, cognitive and brain science, data science, literature, history, social sciences, law, education, and business administration. According to statistics from the Web of Science, the number of high-quality papers published by UM scholars increased from around 140 in 2009 to more than 1,500 in 2018, a tenfold increase in ten years. The citation frequency of the published papers has increased 800 times, from 30 in 2000 to around 24,400 in 2018. The university has also established three state key laboratories with the approval of the central government. Multiple research projects conducted by the three laboratories have won international awards. In recent years, UM is actively promoting collaborative projects between the university and industry in order to promote the development of society through research.

Prof Ge explains that at the core of the new research blueprint is a '3+3+3+3' model, which refers to UM's three state key laboratories, three new key research areas, three interdisciplinary research fields, and three research platforms for humanities and social science. At the same time, the university also plans to devote more resources to research fields that reflect both Macao's distinctive characteristics and global trends.

Three New Key Research Areas

The three state key laboratories at UM carry out cutting-edge research in microelectronics, Chinese medicine, and Internet of Things applications for smart cities, respectively. In 1995, UM successfully developed its first microelectronic chip. Today, chip research has become a main research area at the university. The State Key Laboratory of Analog and Mixed-Signal VLSI has repeatedly distinguished itself at the International Solid-State Circuits Conference of the Institute of Electrical and

合，助力澳門成為「物聯網+」智慧城市。

三個跨學科交叉領域

澳大的研究採取突出特色、發揮優勢的策略，除了三間國家重點實驗室的研究，積極扶持新的研究增長點，以精準醫療、先進材料和區域海洋作為重點發展方向。澳大過去幾年在精準醫療和先進材料領域已有長足進步，澳門數年前開始管理85平方公里水域，因此有需要開展海洋工程、海洋防災和海洋環境等工作。而研究區域海洋則是配合澳門發展所需，又順應國際發展潮流的學科方向。

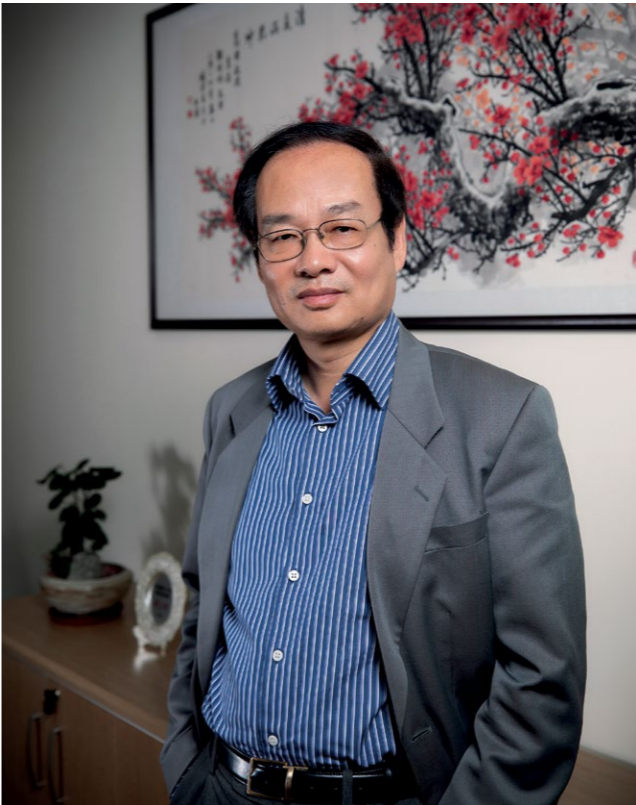
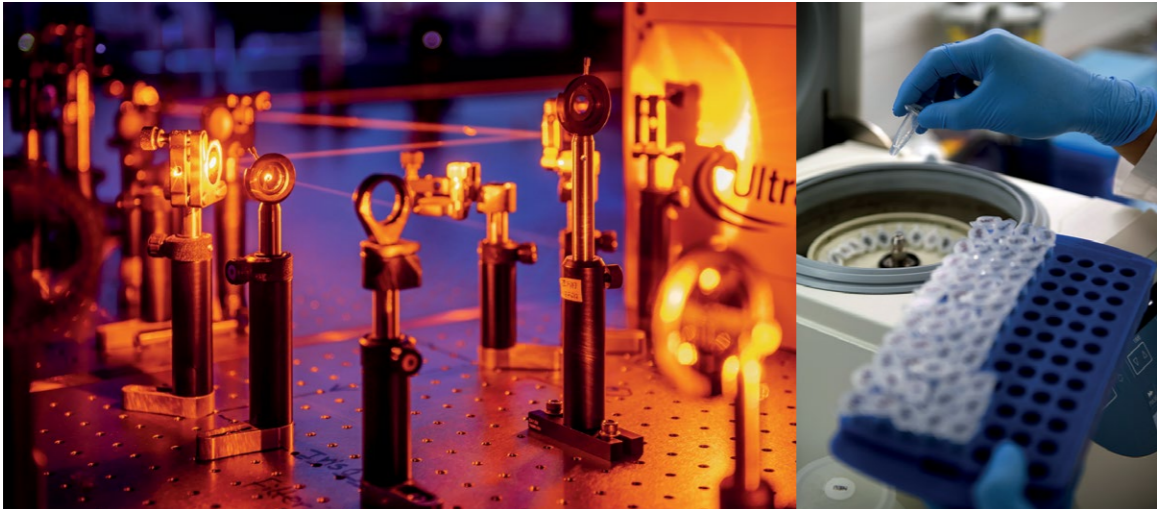
科技與人文社科兩大領域過去壁壘分明，但跨學科研究今日已是大勢所趨。澳大的協同創新研究院設有三個研究中心，分別拓展人工智能、認知與腦科學和數據科學這三大跨學科交叉領域。在人工智能和認知與腦科學這兩個範疇，澳大與中國科學院下設的研究所在2019年先後成立了兩間聯合實驗室，而數據科學研究中心則可為全校各學科提供強大計算支持。

Electronics Engineers. For instance, at the 2019 conference, eight papers from the laboratory were accepted, ranking UM second in the world tied with two other institutes, and next only to Intel. The State Key Laboratory of Quality Research in Chinese Medicine has established a world-class innovation platform for Chinese medicine. The innovative products developed by the laboratory have won many special science and technology awards in Macao as well as a second prize of the State Scientific and Technological Progress Award. The State Key Laboratory of Internet of Things for Smart City, established in 2018, is committed to supporting Macao's development into an 'Internet Plus' smart city through research on network connectivity and integration of IoT modules.

Three Interdisciplinary Research Fields

UM also vigorously supports three newly identified key research areas, namely precision medicine, advanced materials, and regional oceanography. Over the past few years, UM has made significant progress in the fields of precision medicine and advanced materials. According to Prof Ge, several years ago, 85 square kilometres of waters surrounding Macao were demarcated to be under Macao's jurisdiction, which created a need for

澳大在精準醫療和先進材料領域近年有長足發展
UM has made great progress in precision medicine and advanced materials in recent years



澳大副校長（研究）葛偉教授
UM's Vice Rector (Research) Prof Ge Wei

三個人文社科研究平台

在人文社科領域，澳大設有澳門研究中心和亞太經濟與管理研究所兩大平台，以及新成立的人文社科高等研究院。澳門研究中心一直是澳門研究的權威重鎮，中心與澳門基金會合辦的《澳門研究》是現今澳門學最權威的綜合學術期刊。法學院出版的《澳門法學》則為澳門法制建設的主要學術平台。另一方面，大學創辦的綜合人文學報《南國學術》早已躋身同類學術期刊的前茅，成為華南綜合人文佳作薈萃平台。

葛副校長為澳大的研究方向制定了策略性的目標，高等研究院將會統籌人文學院、社會科學學院、工商管理學院、教育學院和法學院的精英研究力量，引進高端人文社科人才，開展專

research in marine engineering, marine disaster prevention, and marine environmental science.

The clear boundary that used to exist between the two major academic domains, namely science and technology, and humanities and social sciences, is becoming increasingly blurred. Today, interdisciplinary research seems to be an inexorable trend. At UM, the Institute of Collaborative Innovation's research centres focus on three interdisciplinary fields: artificial intelligence, cognitive and brain science, and data science. Earlier this year, UM established two joint laboratories with institutes under the Chinese Academy of Sciences to study artificial intelligence and cognitive and brain science. The Centre for Data Science is expected to provide powerful computational support to various disciplines at UM.

Three Research Platforms for Humanities and Social Sciences

UM currently has three major research platforms for humanities and social sciences, namely the Centre for Macau Studies (CMS), the Asia-Pacific Academy of Economics and Management, and the newly established Institute for Advanced Studies in Humanities and Social Sciences (IASHSS). The CMS has always been a prestigious institute for Macao research. *The Journal of Macao Studies*, a collaborative publication between the centre and Macao Foundation, is the most authoritative comprehensive academic journal on Macao studies. *The Macao Law Review*, published by the university's Faculty of Law, is a main academic platform for Macao's legal system construction under the 'One Country, Two Systems' policy. The *South China Quarterly*, a journal founded by UM, is now ranked among the top humanities journals in China and serves as a platform for sharing quality academic results in humanities in South China.

According to Prof Ge, the IASHSS coordinates the efforts of the research teams in the Faculty of Arts and Humanities, Faculty of Social Sciences, Faculty of Business Administration, Faculty of Education, and Faculty of Law. The institute will also recruit

題研究。研究院本身不設固定的研究目標，其任務將因應社會最新的發展不斷變化，而進駐研究院的學者會集中精力從事某個項目，完成項目後就會離開，不會恆常地作為研究院的成員。他表示：「高等研究院還可引入外面的著名學者，讓他們做一些短、中或長期的研究，促進澳大內外學者的合作。」

轉化研究成果

澳大於2016年成立創新創業中心，幫助師生實踐創意理念，並且提供研究成果商業化的平台，每年約有10至20個團隊入駐，其中優秀孵化團隊包括：澳門蓓涑生物科技有限公司（幹細胞常溫運輸系統）、天鐳科技有限公司（疾病相關蛋白質分子的分析 and 定量）等。為加強大學知識產權的保護和使用，澳大全資擁有的科技公司澳大創科（UMTec）已獲許可全權管理大學的知識產權及其開發和應用。

澳大也積極開拓在粵港澳大灣區的發展，珠海澳大科技研究院落地橫琴就是一大舉措。作為澳大首個在大灣區設立的產學研示範基地，珠研院將依託三所國家重點實驗室及優勢學科，開展芯片設計、智慧城市物聯網、材

high-calibre researchers to undertake thematic projects. Rather than serving a set of established objectives, the institute will identify its priorities to reflect the latest social developments. Scholars will work in the institute on certain projects without a permanent position, and their duties will be discharged once their projects are completed. 'The institute can also bring in distinguished scholars from outside UM to carry out short-, medium- or long-term research projects, which will promote collaboration between UM scholars and their peers from other institutions,' Prof Ge says.

Commercialisation of Research Results

In 2016, UM established the Centre for Innovation and Entrepreneurship to provide a platform for faculty members and students to implement their creative ideas and commercialise their research results. Each year, around 10 to 20 entrepreneurial teams with promising business ideas are incubated in the centre. Successful examples include Macao Biotech Co., Ltd. (which has developed an innovative system that can transport stem cells at room temperature) and Tianyi Technology Co., Ltd (which focuses on the analysis and quantification of disease-related protein molecules). In order to strengthen the protection of its intellectual property, UM has established a wholly-owned subsidiary, UMTec, which is a technology company authorised by the university to manage its intellectual property as well as the development and application thereof.

澳大致力推動人文社科研究

UM vigorously supports research in humanities and social sciences



珠海澳大科技研究院是澳大首個在大灣區設立的產學研示範基地

The Zhuhai UM Science & Technology Research Institute is UM's first demonstration base for academia-industry collaboration in the Greater Bay Area



料科技、中藥質量及癌症診療等方面的研究和開發。

UM also actively explores opportunities in the Greater Bay Area. The establishment of the Zhuhai UM Science & Technology Research Institute on Hengqin Island, which is the university's first demonstration base for industry-academia cooperation in the Greater Bay Area, is a major step to this end. With the support of the university's three state key laboratories and competitive disciplines, the institute carries out research and development in chip design, Internet of Things applications for smart cities, materials technology, quality of traditional Chinese medicine, and cancer diagnosis and treatment.



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全球策略提升國際聲譽

Enhancing UM's International Reputation with a New Global Strategy

文 | 葉浩男 · 圖 | 何杰平、編輯部

Chinese & English Text | Davis Ip · Photo | Jack Ho & Editorial Board

澳門大學過去20年來，在國際上聲譽日隆，世界大學排名持續上升。為加速推動澳門高等教育國際化，澳大不斷拓展與海外大學的網絡，搭建更多國際合作研究的平台。為應對未來高等教育發展的挑戰，澳大正推行進取而嶄新的全球策略。副校長（全球事務）馬許願表示：「我們扎根澳門，需要加緊融入大灣區和全國，然後走向全球。」

The University of Macau (UM) has made remarkable progress over the past two decades, with its international reputation and international rankings both rising steadily. To accelerate the internationalisation of higher education in Macao, UM constantly expands its international network and establishes new platforms for international research collaboration. Additionally, the university has devised a global strategy to cope with the new challenges faced by the higher education sector. 'We have our roots in Macao and need to be better integrated with the Greater Bay Area and the entire China. With all these in mind, we can then go global,' says Prof Rui Martins, vice rector (global affairs) of UM.

新策略、新舉措

澳大在2020年泰晤士高等教育世界大學排名301-350、國際化發展排名第九，目前與32個國家和地區、共230所學術機構建立合作關係。為進一步拓展澳大國際聯繫，新的全球策略強調對外合作要達到「4S」，分別是Strategic（戰略性）、Substantial（實質性）、Specific（具體性）和Sustainable（可持續性），主張構建有系統、穩定的夥伴關係，服務澳門和澳大的戰略目標，而非零散地開展合作項目。

聯合培養人才

澳大銳意成為粵港澳大灣區西岸科技創新中心和人才培養基地。今年三月，澳大在珠海橫琴開始建設首個位於內地的產學研示範基地。澳大又積極創建和參與大灣區各類聯盟，包括「粵港澳高校聯盟」和「粵港澳大灣區西岸科技創新和人才培養合作聯盟」。

此外，澳大積極拓展跟內地其他地區高校的合作，例如去年與浙江大學聯合啟動「2+4生物醫學－臨床醫學」學士學位課程，以及今年一月與清華大學簽署聯合培養博士後合作協定。

A New Strategy in Action

UM is ranked in the 301-350 bracket in the Times Higher Education (THE) World University Rankings 2020, with a global ranking of No 9 in International Outlook. It has established partnerships with 230 academic institutions in 32 countries and regions. To further expand its international network, UM has devised a new global strategy, which can be summed up with four words that begin with 'S' - Strategic, Substantial, Specific, and Sustainable. Essentially, the strategy supports organised and stable platforms and partnerships that serve the strategic goals of the university and Macao, instead of pursuing cooperation on a random basis.

Collaborate to Educate

UM is ramping up its efforts to become a centre for technological innovation and a personnel training base in the west of the GBA. In March, UM began building its first industry-education-research demonstration base in mainland China, on Hengqin Island in Zhuhai. Furthermore, the university creates and participates in alliances with partners across the GBA, including the Guangdong-Hong Kong-Macao University Alliance and the Alliance for Technological Innovation and Talent Development in Western GBA.



澳大副校長（全球事務）馬許願教授
UM's Vice Rector (Global Affairs) Prof Rui Martins

澳大又與北京大學天然藥物國家重點實驗室和粵澳合作中醫藥科技產業園合作，共建「北大—澳大中醫藥創新研究院」，並且與中山大學生物無機與合成化學教育部重點實驗室設立聯合重點實驗室。

聯繫葡語國家

創校伊始，澳大在聯繫澳門與葡語國家方面擔當獨特角色。2014至2017年澳大出任葡萄牙語大學聯會主席，目前仍是理事會成員，這意味著澳大與巴西、葡萄牙和其他葡語國家的大學保持良好的關係。馬副校長表示，澳大正計劃與巴西聖保羅大學在葡萄牙語領域開設聯合博士學位課程，同時與該國排名第二的坎皮納斯大學探討合作機會。

一直有不少葡語國家學生到澳大攻讀法律，一大原因是澳門與這些國家的法律體系關係密切。西非島國佛得角現任總統Jorge Carlos Fonseca約20年前曾在澳大出任法學院副教授，足見澳大與葡語國家的深厚聯繫。馬副校長說：「一些外國學生學成返國

As for partnerships with other parts of China, UM launched a '2+4' medical programme together with Zhejiang University in 2018, and signed an agreement in January this year with Tsinghua University on joint postdoctoral training. UM has also established a platform for the commercialisation of new technologies in Chinese medicine on Hengqin Island, in collaboration with Peking University's State Key Laboratory of Natural and Biomimetic Drugs and the Guangdong-Macao Traditional Chinese Medicine Science and Technology Industrial Park, as well as a Ministry of Education joint key laboratory together with Sun Yat-Sen University's Laboratory of Bioinorganic and Synthetic Chemistry.

Ties with Portuguese-speaking Countries

Since its founding, UM has been playing a unique role in bridging Macao with Portuguese-speaking countries. Between 2014 and 2017, UM was the president of the Association of Portuguese Speaking Universities (AULP). UM is still a member of the board, maintaining good relationships with universities in Brazil, Portugal and other Portuguese-speaking countries. According to Prof Martins, UM is planning a dual doctoral degree in the Portuguese language with the University of São Paulo, and is also exploring opportunities with the University of Campinas, which is ranked second in Brazil.

Many students from Portuguese-speaking countries choose UM to study law because of the close ties between Macao's legal system and that of their home countries. For instance, Jorge Carlos Fonseca, the incumbent president of the Republic of Cabo Verde, was an associate professor in the Faculty of Law two decades ago. According to Prof Martins, many students from these countries come to study at UM every year. After returning to their countries, many of them serve in important positions such as high court judges and law professors.

In fact, UM's cooperation with these countries has expanded to areas like engineering, health sciences, and nanotechnology. For instance, UM has been working with the International Iberian Nanotechnology Laboratory in Braga in Northern



宋永華校長及馬許願副校長到訪安哥拉，加強與葡語國家大學的聯繫。
Rector Yonghua Song and Vice Rector Rui Martins visit Angola to strengthen ties with lusophone universities

後，不少人後來擔任高等法院法官和法學教授等要職。」

澳大與葡語國家的合作也擴展到工程、健康科學和納米科技等領域，例如澳大在2018年起與葡萄牙北部布拉加的國際伊比利亞納米技術實驗室合作，今年初首次聯合發表科學論文，預計將會創出更多科研成果。

2019年，澳大代表團到訪葡萄牙的里斯本大學、科英布拉大學、波爾圖大學和米尼奧大學，強化與這些知名院校的合作。他們也拜會了葡萄牙技術與高等教育部部長Manuel Heitor。

放眼英語國家

澳大的全球策略也鼓勵擴展與英語國家合作，當中以英國作為首要對象。馬副校長表示：「我們期望與當地的頂尖大學在不同知識領域開展更廣泛的合作，對象有倫敦帝國學院、愛丁堡大學、布里斯托大學及巴斯大學等。」

澳大今年推出了不少新措施，包括在五



宋永華校長率領澳大代表團拜會葡萄牙技術與高等教育部部長 Manuel Heitor
A UM delegation led by Rector Yonghua Song visits Manuel Heitor, minister of science, technology, and higher education of Portugal.

Portugal since 2018. Earlier this year, the first joint scientific paper from this collaboration was published, and more outcomes are expected.

In 2019, a UM delegation visited renowned universities in Portugal, including the University of Lisbon, the University of Coimbra, the University of Porto, and the University of Minho, in order to strengthen collaboration. The delegation also visited Manuel Heitor, minister of science, technology, and higher education of Portugal.

Setting Sights on the UK

Also at the core of UM's global strategy is its relationships with English-speaking countries, especially the United Kingdom. 'We'd like to have wider collaborations with top universities there, like Imperial College London, the University of Edinburgh, the University of Bath, and others, in different areas of knowledge,' says Prof Martins.

In 2019, important steps like a memorandum of understanding with Imperial College London - signed in May - are opening up new opportunities for UM



上圖：「粵港澳大灣區西岸科技創新和人才培養合作聯盟」在澳大成立
下圖：澳大2018年起與位於葡萄牙布拉加的國際伊比利亞納米技術實驗室合作
Upper: The Alliance for Technological Innovation and Talent Development in Western GBA was founded at UM in August 2019
Lower: UM has been working with the International Iberian Nanotechnology Laboratory in Braga, Northern Portugal, since 2018



2014至2017年澳大出任葡萄牙語大學聯會主席
UM was the president of the Association of Portuguese Speaking Universities between 2014 and 2017

月與倫敦帝國學院簽署諒解備忘錄。通過是次合作，澳大將推出「1+3」博士課程計劃，優秀的澳大研究生將有機會在澳大攻讀博士學位期間，到倫敦帝國學院修讀一年碩士課程。

澳大今年與愛丁堡大學和布里斯托大學分別簽署合作備忘錄，近年還與其他英語國家的卓越大學合作，包括加拿大多倫多大學和美國天普大學，共同開展人才聯合培養項目。馬副校長又提到，澳大榮譽學院多數學生目前可到美國著名學府或葡萄牙的科英布拉大學，學習一個學期或參與暑期課程，未來更有機會選擇到英國院校學習。

students and researchers. The agreement sets a framework for UM's '1+3 PhD scheme', through which outstanding postgraduate students at UM will have the opportunity to undertake a one-year master's programme at Imperial College during their PhD study at UM.

Earlier this year, UM signed similar MOUs with the University of Bristol and the University of Edinburgh, respectively. In recent years, UM has also been working with reputable universities in other English-speaking countries such as the University of Toronto in Canada and Temple University in the United States. Prof Martins also notes that, while most students of UM's Honour's College (HC) can choose to study for one semester or during the summer at notable universities in the United States or Portugal, opportunities with British universities will be created soon.



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推全人教育配合澳門發展

Supporting Macao's Development with Whole-person Education

文 | 葉浩男、資深校園記者陸美賢 · 圖 | 黃嘉來、編輯部

Chinese Text | Davis Ip, Senior UM Reporter Savanna Lok Photo | Michael Vong & Editorial Board

澳門回歸以來，澳門大學作為澳門唯一一所綜合性公立大學，積極培養能引領社會發展的多元人才，以滿足澳門經濟發展對人力資源的需求。澳大的學生培養模式與國際接軌，創新地實施「四位一體」教育模式，融合專業、通識、研習和社群教育，加強學生的全人發展。副校長（學生事務）蘇基朗表示，澳大未來會更著重培養對社會有心、擁有國際視野的下一代。

As the only public comprehensive university in Macao, the University of Macau (UM) has played a leadership role in nurturing professionals in various fields to support the fast economic growth of Macao since its handover to China. UM implements a '4-in-1' education model that consists of discipline-specific education, general education, research and internship education, and community and peer education, to help students achieve well-rounded development. Prof Billy So, UM's vice rector for student affairs, says that in the future UM will focus on nurturing students into caring, socially responsible, and globally minded individuals.

課堂外的學習

澳大建立了亞洲最具規模的住宿式書院系統，目前設有10所書院，每所平均約有500名學生，他們在書院與導師同宿共膳，策劃和參與各類活動。書院是「四位一體」教育模式中「社群教育」的實踐平台，通過系統化學習規劃，協助學生達到以下五項能力指標：健康生活、人際關係和團隊合

Learning Outside the Classroom

Currently, UM has Asia's largest residential college system, with ten colleges in operation, each home to approximately 500 students. These students live, dine, and organise activities together, under the guidance of a group of resident faculty members. The RC system serves as a vehicle for implementing community and peer education, one component of the '4-in-1' model. According to Prof So, the RCs aim to help students develop competencies in five areas, namely Healthy Living, Interpersonal Relation and Teamwork, Leadership and Service, Cultural Engagement, and Citizenship with a Global Perspective, through systematic planning of all courses, programmes, and activities. Students are encouraged to apply textbook knowledge in real-world situations. Prof So explains that an RC is different from a dormitory, in that it provides a platform for students to receive community and peer education, to learn how to become better persons, and to apply classroom knowledge in real life.

澳大副校長（學生事務）蘇基朗教授

UM's Vice Rector (Student Affairs) Prof Billy So



UM also emphasises the links between classroom learning and extracurricular activities. There are close to 30 sports, cultural and arts teams, as well as about 100 student-led groups under the Students' Union and the Postgraduate Association, for students to choose from. Through these organisations, students can showcase their talents, develop skills, and make friends from different cultural backgrounds.

教學方式 Method 教學內容 Teaching Content	課堂內 Inside classroom	課堂外 Outside classroom
專深 Specific, in-depth	專業教育 Discipline-specific education	研習教育 Research & internship education
廣泛 General, extensive	通識教育 General education	社群教育 Community & peer education

澳大推行「四位一體」教育模式
UM implements a '4-in-1' model of education

作、領導與服務、文化參與、具有國際視野的公民，並且學習將知識與為人在生活上融會貫通，知行合一。蘇副校長表示，書院不是宿舍，而是學生同輩與群體教育的重要學習平台：學做人、學專業、學通識，學怎麼把知識學以致用。而「四位一體」教育理念就是希望學生在接受這四種教育的同時，把他們融會貫通。

同時，澳大促進學生在不同層次和方面成才，並強化課堂與活動的連結。澳大還為學生創造多元和充滿活動的校園氣氛，學生可加入近30個運動校隊或文化藝術校隊，以及澳大學生會和澳大研究生會轄下約100個屬會，展現才能和結交各種文化背景的朋友。

拓展國際視野

澳大在學生素養上著重培養具有家國情懷、國際視野、全球競爭力和世界擔當的人才。鼓勵學生關心澳門和國家，引導他們多瞭解澳門的歷史和未來建設，加深認識國家政策和中國傳統文化。澳大去年更成立國旗隊，由本科生、碩士生及博士生組成，其出

Instilling a Global Mindset

According to Prof So, UM hopes to produce graduates who are compassionate, caring, globally minded, internationally competitive, and socially responsible. For students who are interested in Chinese culture or plan to pursue a career in Macao or mainland China, the university encourages them to gain a better understanding of Macao’s history and its future direction as well as China’s national policies and traditional culture. Last year, UM established its National Flag Team, which is composed of students from Macao, Hong Kong, mainland China, and Taiwan. The university also recommends outstanding students for a national programme known as ‘The Ten Thousand Talent Programme’, which sponsors teachers and students from Macao and Hong Kong to participate in exchange or educational programmes at mainland universities, to help them gain a better understanding of academic and cultural development in China.

Instilling a global mindset in students is an important part of whole-person education, which is particularly important for students studying in a cosmopolitan city like Macao. Over the past 20 years, UM has entered into partnerships with an increasing number of higher education institutions. Currently, UM students can choose to participate in exchange programmes at over 150 universities in 28 countries and regions. For years, UM offers a Global Summer Internship Programme to sponsor students to serve internships in Macao, mainland China, and overseas countries. Starting in 2020, the programme will provide internship opportunities in different parts of the world, including Europe, North America, and Oceania. Prof So says, ‘Even if the students choose to stay in Macao after graduation, they will still come into contact with people from other places, perhaps more and more frequently. So it is very important to develop a global mindset.’

Supporting Students’ Entrepreneurial Attempts

To support the Macao SAR government’s effort to promote innovation and entrepreneurship, UM

生地多元，包括澳門、香港、內地及台灣。此外，也推薦學生參與「港澳與內地大中小學師生交流計劃——大學生項目」（簡稱「萬人計劃」），促進學生對內地學術及文化的認識。

澳門是一個國際化城市，國際視野是全人教育的重要一環，對澳門的大學生尤其重要。澳大在過去20年持續增加跟全球高等院校的交流和合作，現時學生可到28個國家和地區共150多所高等院校交流，拓展學生的國際視野。澳大多年來推動廣受學生歡迎的「環球暑期實習計劃」，資助及安排學生到本地、內地及海外進行實習。在2020年提供的實習地點遍及歐洲、北美洲和大洋洲等。蘇副校長說：「即使學生留在澳門發展，工作上也會越來越需要接觸來自其他地方的人，因此要有廣闊的國際視野。」

推動學生創業

在配合特區政府推動創新創業方面，澳大舉辦不同的創業比賽，激發學生對創業的興趣和認識，培養有創新思維、創業夢想的未來創業人士。澳大舉辦各類型考察團，讓學生瞭解內地和鄰近地區的經濟發展、企業文化和創業情況，又鼓勵學生參與各類創業比賽，並與香港科技大學合辦「中銀盃百萬獎金澳門區創業大賽」。在2019年賽事中，澳大學生的隊伍囊括冠亞季軍。澳大近年推動學生到內地實習，包括新推出的「騰訊-澳門『英才計劃』實習項目」，讓學生瞭解國家發展大局，有助未來的就業規劃。

鼓勵服務社群

服務社會是大學的宗旨之一，澳大近年組織學生到世界各地及內地多個省份服務當地社群，其中「泰國義教工作團隊」更首次前往非洲參與服務學習計劃。學生也積極到本地社會服務



澳大學生積極參與社會服務
UM students make an active contribution to the society

regularly organises entrepreneurship competitions, sometimes with other universities, to encourage entrepreneurial projects from students. For instance, it has co-organised the Bank of China Trophy One Million Dollar Macao Regional Entrepreneurship Competition with the Hong Kong University of Science and Technology. At the 2019 competition, UM students swept all the top prizes. UM also organises field trips to mainland China and its neighbouring regions to help students gain a deeper understanding of economic development and entrepreneurial culture in these regions. Apart from the Global Summer Internship Programm, UM has launched various other internship programmes in recent years, including the Tencent - Macao Talent Internship Programme, to help students understand national development and start early career planning.

Encouraging Students to Give Back to Society

In recent years, UM has organised many service learning trips to different parts of the world. The Thailand Volunteer Teaching Work Group, for instance, has made its first service learning trip



澳大的住宿式書院
UM's residential colleges

機構參加志願服務，更在老師指導下展開與澳門社群息息相關的研究。例如心理學系全球及社區心理健康研究組數名學生進行了多項關於澳門公眾健康的研究，成果在2018美國心理學會年度國際研討會展示並獲獎。

為響應特區政府「青年志願扶貧計劃」，提升青年參與及貢獻社會的意識，澳大組織了多個服務學習計劃，於內地偏遠地區進行義教及探訪等工作，讓學生關顧弱勢群體和全面瞭解國家情況，培養社會責任感和參與意識。

讓學生從心出發

澳大推動全人教育，歸根究柢是讓學生在獲取專業技能的同時，學習關心其他人和社會大眾。蘇副校長表示：

to Africa. UM students also actively participate in volunteer service programmes organised by local associations. Some of them have gone one step further by carrying out research studies on issues of close interest to the local community under the guidance of their professors. For instance, students from the Global and Community Mental Health Research Group under the Department of Psychology have completed several public health studies in Macao. Their findings were presented and won several awards at the 2018 Convention of the American Psychological Association, one of the oldest and most respected psychology associations in the world.

In response to a poverty alleviation volunteer programme launched by the Macao government, UM has organised multiple service learning programmes, through which students visit remote areas in China to provide volunteer teaching or other forms of help to the disadvantaged. In addition to raising



澳大培養學生的全人發展
UM help students achieve well-rounded development

「我們要培養有心的學生，要對自己有心，也要對別人有心。很多人有知識和技能，但只是關心自己，這對社會沒有甚麼好處，對他們自己其實也未必有益。我們希望澳大的同學將來對社會有真正的貢獻，這點必須從他們的心出發。」



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student awareness about giving back to society, these programmes have also helped students gain a comprehensive understanding of the state of the nation and foster a sense of social responsibility.

Cultivating a Caring Heart

Prof So believes that whole-person education is essentially about teaching students to learn to care about other people and society in general, in addition to acquiring professional skills. He says, 'We want our students to not only care about themselves, but also care about other people. No matter how talented a person is, if he only cares about himself, what good is he going to bring to society? Eventually, self-centred people may not even bring much good to themselves. So I hope UM students will contribute to society in some meaningful way after graduation, and I believe this should start with cultivating a caring heart.'

環境育人配合大學發展

Creating an Environment to Support the University's Development



文 | 編輯部整理 · 圖 | 黃嘉來、何杰平、編輯部

Chinese Text | Edited by the Editorial Board · Photo | Michael Vong, Jack Ho & Editorial Board

在澳門大學創校38年的眾多發展里程碑中，2009年獲中央政府撥地在廣東省橫琴島興建新校園，是其中最舉世矚目的項目。新校園體現了國家和澳門特區政府對澳門高等教育的重視和支持，澳門在回歸以來，經濟高速增長及走向多元化，因此，澳門的高等教育必須擴大規模和提高質量，副校長（行政事務）高薇表示，為配合大學的迅速發展及持續擴展，將對校園和教研設施進行調整。

Of the many milestones in the University of Macau's (UM) 38-year history, the most important one was the construction of a new campus in 2009 on Hengqin Island, Guangdong province. It shows the support of the central and Macao SAR governments for higher education development in Macao. Since its handover, Macao has experienced fast economic growth and an ever-increasing need for economic diversification, which in turn has led to growing demand for professionals in different fields. In this context, higher education institutions in Macao scramble to expand their campuses in order to nurture more professionals for society. UM is no exception. Dr Kou Mei,

UM's vice rector for administration, explains that the management team plans to make some adjustments to the teaching and research facilities on campus in order to support the university's rapid development and continued expansion.

澳門高等教育創舉

2009年6月27日，全國人民代表大會常務委員會通過澳大在廣東省橫琴島建設新校園，並授權由澳門特別行政區依照澳門特區法律實施管轄。高副校長說：「新校園是中央政府送給澳門特區政府和澳大的厚禮，也是作為粵澳聯合開發橫琴島的『先行先試』項目，是『一國兩制，澳人治澳』的發展和創新，意義非凡。」同年12月20日，時任國家主席胡錦濤為新校園奠基。在各方的共同努力下，新校園於2013年7月20日完成建造工程，同年11月5日正式啟用。新校園僅用了三年多時間完成設計、建築及搬遷，於2014年全面搬遷到新校園，這是澳門高等教育史上的一個創舉，也結束了澳大「有校無園」的歷史。

校園規劃配合發展

新校園作為一次性規劃及一次性建設項目，佔地約1.09平方公里，面積比舊校園約大20倍，讓澳大有更優越的軟硬設施實踐辦學理念，為澳門未來的持續發展培養更多的人才。

澳大現有60多幢建築物，為教研提供了優越的環境和設施，設有人文學院、工商管理學院、教育學院、健康科學學院、法學院、社會科學學院、科技學院。榮譽學院、研究生院、持續進修中心，以及中華醫藥研究院、應用物理及材料工程研究院、協同創新研究院、微電子研究院、澳門研究中心、亞太經濟與管理研究所、人文社科高等研究院。並建立亞洲最具規

An Unprecedented Move in Macao's Higher Education History

On 27 June 2009, the Standing Committee of the National People's Congress adopted a bill on the construction of a new UM campus on Hengqin Island, Guangdong province. Moreover, the bill authorised Macao Special Administrative Region to exercise jurisdiction over the new campus. Dr Kou says, 'The new campus was an extraordinary gift from the central government to the SAR government and our university. It was also one of the earliest examples of Guangdong and Macao's joint development of Hengqin Island. It is extraordinary because it is an innovative implementation of the "One Country, Two Systems" policy.' On 20 December of the same year, then President Hu Jintao officiated at the groundbreaking ceremony for the new campus. With the joint effort of various parties, the new campus was completed on 20 July 2013 and was officially put into use on 5 November of the same year. The design and construction of the campus and the subsequent relocation only took a little over three years. UM's relocation to the new campus in 2014 was an unprecedented move in Macao's higher education history, allowing UM to shed the unwanted reputation as 'a campus-less university'.

Campus Planning to Support the University's Development

Covering approximately 1.09 square kilometres, the new campus is about 20 times larger than the old campus. It puts UM in a much more favourable position to pursue its educational ideals in order to nurture more professionals to support the sustainable development of Macao.

Currently, there are more than 60 buildings on



澳大副校長（行政事務）高薇（中）
UM's Vice Rector (Administration) Dr Kou Mei (middle)

模的住宿式書院系統，設立10間住宿式書院，全方位實踐全人教育。

新校園的規劃為回應澳門社會的需要、國家的期望及世界高等教育的發展趨勢，按規劃，未來數年本科和研究生的人數將繼續增加，由現時的1萬人增加20%至12,000人。而發展學生的多元化意味著校園住宿設施必須增加，這是促進學生文化交流和社會交往的必要條件，因此書院也按規劃增至12間，兩幢新書院預計在2019/2020學年落成使用，學生可以在精心設計的生活學習社區環境中培養領導力、視野及關愛品格。

毋庸置疑，新校園自啟用後，澳大有頂尖的教研設施，吸引了國際學術界優秀的老師加盟，大大地促進了教

the new campus to house the various faculties, research institutes, and centres. They include the Faculty of Arts and Humanities, Faculty of Business Administration, Faculty of Education, Faculty of Health Sciences, Faculty of Law, Faculty of Social Sciences, Faculty of Science and Technology, Honours College, Graduate School, Centre for Continuing Education, Institute of Chinese Medical Sciences, Institute of Applied Physics and Materials Engineering (IAPME), Institute of Collaborative Innovation, Institute of Microelectronics, Centre for Macau Studies, Asia-Pacific Academy of Economics and Management, and Institute for Advanced Studies in Humanities and Social Sciences. The university also has Asia's largest residential college (RC) system, with ten RCs in operation to facilitate the implementation of whole-person education.

The university plans to increase the numbers of both undergraduate and postgraduate students



上圖：科研大樓的實驗室將進行調整，以配合發展需要。
下圖：澳大現有60多幢建築物，為教研提供了優越的環境和設施。
Upper: Some adjustments will be made to the laboratories in the Research Building to support the university's development
Lower: Currently, there are more than 60 buildings on the new campus.



澳大持續完善校園設施
UM continues to improve its facilities

學和研究的發展。過去幾年，澳大的教學和研究均發展迅速，國家重點實驗室的實驗室也增至三間，因此大學將對科研大樓的實驗室進行重新調整，當中包括健康科學學院各層實驗室、智慧城市物聯網國家重點實驗室、大範圍電子傳感及能源採集與精準醫療電子實驗室、中華醫藥國際創新中心及科研大樓，以及應用物理及材料工程研究院實驗室等。高副校長表示，澳大將持續美化及完善校園設施以及相關配套，為大學成員提供一個具備城市便利和現代化設施的同時，還保持適宜學術思考的田園及樸素的學術特色的育人環境，「我們期望20倍面積的校園未來能夠帶來超過20倍的發展。」

over the next few years, with the total number of students projected to increase by 20 per cent, from the current 10,000 to more than 12,000. To cope with the increasing number of students, two new RCs will be built and put into use in the 2019/2020 academic year, bringing the total number of RCs to 12. Each RC is a close-knit community where students live and learn together. The well-designed courses and activities aim to help students grow into individuals with leadership skills, a global mindset, and a caring heart.

Thanks to the advanced facilities on the new campus, UM has attracted many outstanding scholars from around the world, whose appointment has greatly enhanced the quality of teaching and research at the university. In recent years, UM has progressed rapidly in both teaching and research, with three state key laboratories now in operation. In response to these new developments, the management team plans to make some adjustments to the laboratories in the Research Building, including laboratories on each floor of the Faculty of Health Sciences; the State Key Laboratory of Internet of Things for Smart City; the laboratories in the fields of large-scale sensor network, energy harvesting, and precision medicine; the centre for the internationalisation and innovation of Chinese medicine; and the laboratories of the IAPME. Dr Kou says, 'We will continue to beautify the campus and improve the facilities, in order to provide a more beautiful and comfortable environment in which students, faculty and staff can study, work and live. We want to create an environment conducive to scholarly pursuits. We hope the 20-fold increase in the campus size will translate into a 20-fold increase in the speed of the university's development.'

黎寧：使命感讓我回「家」

Rose Lai: My Sense of Mission Urges Me to Return to UM

文 | 庄瑜婷 · 圖 | 張愛華，部分由榮譽學院提供

Chinese Text | Cravina Chong · Photo | Ella Cheong, with some provided by the Honours College

1999年澳門回歸時，澳門大學榮譽學院院長、工商管理學院教授黎寧正在澳大任職講師。當年她因為抱著一份使命感和一種對「家」的感情，在加拿大取得碩士學位後回澳發展，以學者身份回饋社會。

Around the time of Macao's handover to China in 1999, Prof Rose Neng Lai was a lecturer at the University of Macau (UM). She is currently the dean of UM's Honours College and a professor in the Faculty of Business Administration. Although Prof Lai was born and raised in Macao, she obtained her master's degree in Canada. Urged by a sense of mission to contribute to Macao as a scholar, she made the decision to return to the city and joined UM, a place she calls home.

回歸後發展機會多

在澳大前身東亞大學畢業後，黎教授赴加拿大深造。20世紀八、九十年代，很多人仍不認識澳門這個地方，一向比較有自信的黎教授出國前也擔心比不上外國學生。到了加拿大後，她發現澳大給她的能力並不遜於外國同學，「澳門出產的學生其實一點也不輸蝕，這給了我很大的動力。」

1992年，黎教授碩士畢業後決定回來回饋澳門，1993加入澳大任教。「因為大學給我家的感覺，同時也想為澳門做些貢獻。我的學術生涯很暢順，因為大學的環境可讓我自由發揮。」任教的同時，她於1996年開始在香港中文大學攻讀博士，2001年初拿到博

More Opportunities after Macao's Handover

After graduating from the University of East Asia, the predecessor of UM, Prof Lai decided to pursue further education in Canada. In the 1980s and 1990s, not many people outside Macao were familiar with this city. Even though she had strong confidence in her abilities, Prof Lai was worried that she would have a hard time competing with the students in Canada. But to her relief, she found that her knowledge acquired in Macao allowed her to perform as well as the other students in her class. 'I began to realise that students from Macao are just as good as students from elsewhere,' says Prof Lai. 'And that realisation gave me a lot of confidence.'

Prof Lai obtained her master's degree in 1992 and decided to return to Macao. She joined UM in 1993. 'The university felt like a home and I wanted to



黎寧教授 Prof Rose Neng Lai

士學位，其後開始參與一些研究和行政工作。

她認為是時間的配合，令回歸後中國人的發展機會增多。一方面是學歷提升，其次是外籍老師離開後，在美國和新加坡等地取得博士學位的內地和香港人加入澳大，種種因素使中國人的發展機會增多，「因為達到大學要求的學歷，再加上努力和熱誠，大家得到更多認同。」

「回歸後的那一任校長是土生土長的澳門人，以前很多中高級職位和學院管理層都是外國人，而在回歸後校方實施的一系列改革，令大學得到擴展，為本地及鄰近地區的中國人造就了更多機會。」黎教授在2001年拿到金融學博士學位後，同年晉升為助理教授，成為人生一個重要的里程碑。

以學者身份貢獻澳門社會

黎教授長期研究風險管理與實體期權、金融系統穩定及行為金融學，研究成果屢獲殊榮，包括在2017年獲國際權威學術期刊《不動產經濟學》頒發「Edwin S. Mills 最佳論文獎」。她是學術期刊《國際房地產研究》主編、

do something for Macao, so I stayed,' she says, crediting her smooth academic career to the free academic atmosphere of the university. While teaching at UM, she studied for a PhD degree at the Chinese University of Hong Kong. She obtained the degree in 2001 and became more involved in research and administrative work at UM.

According to Prof Lai, the handover of Macao created more opportunities for Chinese scholars to develop their careers at UM, for two reasons. First, Chinese scholars began to have stronger academic backgrounds. Second, many foreign faculty members left UM after the city's handover and their positions became vacant. These positions were later filled by scholars from mainland China and Hong Kong, many of whom had obtained PhD degrees from the United States or Singapore. 'Chinese scholars could already meet the academic requirements of the university, and they were also hard-working and passionate for their work, so they began to receive more recognition,' says Prof Lai.

'The first rector of UM after the handover was a native of Macao,' says Prof Lai. 'Before the handover, many mid-level and senior positions, as well as positions in the top management of the faculties, were held by foreigners. After the handover, the university implemented a series of reforms to create room for development and opportunities for Chinese scholars in Macao and its neighbouring regions.' Prof Lai obtained her PhD degree in finance in 2001 and was promoted to assistant professor the same year. It was an important milestone in her life.

Contributing to Macao as a Scholar

Prof Lai is a long-time researcher of risk management, real options, and the stability of financial systems. She has received many awards, including the 2017 Edwin S Mills Real Estate Economics Best Paper Award. In addition to her positions at UM, she is also the executive editor of the journal *International Real Estate Review*, executive director of the Asian Real Estate Society (president from 2006 to 2007), executive director and founding member of the Global Chinese Real Estate Congress, and a life member of Clare Hall, University of Cambridge.



黎寧教授2019年
接任澳大榮譽學院院長
Prof Rose Neng Lai was
appointed dean of UM's
Honours College in 2019

亞洲房地產學會理事長（亦為2006–2007主席）、世界華人不動產學會常務理事及創會會員（亦為2011–2012主席），以及劍橋大學克萊爾學堂終身成員。

多年來，她一直希望用學者的身份貢獻澳門社會。她表示，早在2006年已有香港媒體就澳門房地產市場的議題訪問她，到2009年才首次收到一個團體關於研究澳門房屋政策的項目邀請，卻是跟香港的學者合作，讓她內心有個疑問：「為甚麼澳門的事要找香港人做？」在她參與的一些研究報告發佈後，越來越多本地機構跟她接觸，也有更多本地媒體訪問她，「慢慢我發現，澳門社會接受了澳門本地的聲音。回歸後澳門的發展亦令澳門人多了找本地學術界人士去參與一些項目和去解決一些專業問題。」

黎教授說，去年有三個本地項目同時接觸她，雖然很忙，但全部接了，「因為我覺得很有意義，可以用我的研究報告幫到澳門社會。不是因為可以賺錢，而是為了一份使命感，可以憑自己的專業為澳門的發展出一分力，那份成就感是無價的。」

After her return to Macao in 1992, Prof Lai always hoped to contribute to the local society in her capacity as a scholar. But it was not until 2009 that she received her first invitation from a local association to conduct a study of Macao's housing policy, although she was interviewed by Hong Kong media about Macao's real estate market as early as 2006. And for that housing policy project, she was required to work with scholars from Hong Kong, which made her ask herself, 'Why do we need help from Hong Kong to study matters in Macao?' Later, after the release of some research reports from that project, she began to be approached more frequently by local organisations and interviewed more often by the local media. 'Gradually, people began to see the value of the opinions of local scholars,' she says. 'After Macao's handover, local scholars had more and more opportunities to participate in local projects and use their expertise to address local issues.'

Last year, she received invitations to conduct three local projects. Despite a hectic schedule, she accepted all of them. 'I think it is very meaningful to be able to contribute to the local society through research,' she says. 'I am not doing it for money, I'm doing it for a sense of mission. The sense of accomplishment that I get from these projects is priceless.'

Augusto Teixeira Garcia: 為澳門培養法律人才

Augusto Teixeira Garcia: Nurturing Legal Professionals for Macao

文 | 葉浩男 · 圖 | 何杰平

Chinese & English Text | Davis Ip · Photo | Jack Ho



澳門大學法學院副院長Augusto Teixeira Garcia教授來自葡萄牙，1990年來到澳大前身的東亞大學任教。當時他簽了兩年合約，豈料往後近30年在澳門落地生根，回歸後20年間一直教授商法，尤其是他主導改革的《商法典》，他說：「這麼多年來，我從未覺得要離開澳門。」

In 1990, Prof Augusto Teixeira Garcia relocated from Portugal to work on a two-year contract at the University of East Asia (UEA), the predecessor of the University of Macau (UM). At the time, he did not anticipate that this city would become his home, or that he would become an associate dean of the Faculty of Law (FLL). In the past 20 years, he has taught commercial law, in particular the Commercial Code of Macao, of which he was the main drafter. 'All these years, I've never wanted to leave Macao,' he says.

過渡期參與改革《商法典》

生於波爾圖的Garcia教授曾在葡萄牙擔任律師和在高等院校執教。初抵澳門時，他覺得這地方「又熱又濕」，後來才發現澳門的吸引之處。1996年，Garcia教授獲政府任命為商法典草案協調員，改革在19世紀制訂、早已不合時宜的《商法典》。

Reforming the Commercial Code in the Transitional Period

Born in Porto, Prof Garcia worked as a lawyer and professor in higher education institutions in Portugal. Despite his first impression of Macao as a 'hot and humid place', he later discovered that he was charmed by the city's attractions, and he decided to stay on. In 1996, the local government appointed him the coordinator of the reform of the Commercial Code, a 19th-century creation that could no longer meet Macao's needs.



2019年，Garcia教授（右一）作為澳大代表團的一員到訪莫桑比克教育大學。

In 2019, Prof Garcia (1st from right), as member of a UM delegation, visits Pedagogical University in Mozambique.

Garcia教授說，1987年《中葡聯合聲明》簽署後，公務員本地化、中文成為正式語文和法律本地化成為澳門過渡期的三大要務。「在澳門制訂的法律，要到1980年代末開始才有中文版本，之前的法律，例如是1888年訂立的《商法典》都沒有中文。因此，我們要將所有法律翻譯，要不就是原封不動地翻譯，要不就是趁機更新它們、為澳門留下一個現代化的法律環境，而政府選擇了後者。」

1999年澳門回歸前夕，新的《商法典》正式生效，當時Garcia教授已在澳門育有三個子女，與這個城市建立了深厚的連結。雖然他一些葡萄牙朋友當時選擇離開，但他覺得有責任留在法學院，為學生教授以新《商法典》為基礎的商法。

學生遍佈法律界

Garcia教授說：「我們是澳門歷史最悠久的法學院，首要目的是為澳門培養

After the signing of the Sino-Portuguese Joint Declaration on the Question of Macao in 1987, Macao was to pursue the localisation of the civil service, language (with Chinese serving as an official language) and law. 'Legislation in Macao did not come with a Chinese translation until the late 1980s. All the laws created in the past, including the Commercial Code that came into force in 1888, had no Chinese version. So we had to translate the laws. We could either translate them as they were, or take the opportunity to reform them to provide Macao with a more modern legal environment. The government took the latter path,' he says.

The new Commercial Code came into force shortly before the handover of Macao in 1999. At that time, Prof Garcia already had three children who were born in Macao and a close tie with the city. While some of his Portuguese friends were planning to leave Macao, he felt an obligation to stay in FLL to teach commercial law according to the new law.

Students Across the Legal Sector

On FLL's role, Prof Garcia says, 'The FLL is the oldest law school in Macao. Its objective is to train jurists with expertise in Macao's legal system for all kinds of legal tasks. The programmes offered by the FLL aim to nurture legal professionals to serve the local community. The majority of the legal professionals, including judges, public prosecutors, jurists in the civil service and lawyers, are our graduates. Also, some of our graduates are current or former members of the Legislative Assembly.'

Prof Garcia has taught commercial law and company law for decades, and he fondly remembers many outstanding students. 'One of my former students is now a judge,' he says. 'When she enrolled in our Bachelor of Law programme in Portuguese, she could hardly speak any Portuguese, but she did not give up and did very well later on. After getting her degree, she entered the civil service and eventually became a judge. She also did a master's programme with me. Now she speaks Portuguese fluently. I am amazed and very proud of her because I know the difficulties she has overcome with the language.'

各類法律人才。澳門絕大多數的法律專才，包括法官、檢察官、律師和政府內的法律人員，都是我們的畢業生，有些更曾經或正在擔任立法會議員。」

這些年來，Garcia教授一直從事有關商法和公司法的教學，可謂桃李滿門，當中有些學生令他印象特別深刻。「我有一位學生現時是法官。她剛修讀我們的葡文法學士課程時，幾乎不懂葡語，但她沒有放棄，不斷努力，表現非常出色。她畢業後先到政府任職，後來成為法官，更回來澳大跟隨我攻讀碩士，葡語非常流利。我知道她當初面對的困難，今日見到她的成就，我覺得非常驕傲。」

聯繫葡語國家

法學院向來與葡語世界，尤其是葡萄牙、非洲葡語國家和東帝汶有特殊聯繫。早在1990年代末，Garcia教授就作為澳大代表團的一員，到莫桑比克的蒙德拉內大學建立合作關係。20多年後的今年，Garcia教授跟隨澳大校長宋永華教授到訪該校，探索新的合作項目，更見證了澳大與莫桑比克教育大學簽訂新的合作備忘錄。

Garcia教授說，法學院有不少非洲葡語國家學生，由他擔任課程主任的葡文法學碩士課程當中，就有近一半學生來自這些國家。「他們畢業回國後大部分會投身法律界。例如在佛得角，我們更有校友成為部長級官員。我們也有來自東帝汶的學生，雖然人數較少，他們有些在司法機構、政府或學術機構擔任相關職位。」

在澳門回歸20週年之際，Garcia教授相信澳門將會更加繁榮，而他希望發展成果能更均衡地惠及社會各界。「與此同時，法學院和澳大整體也會在澳門的持續發展上繼續擔當重要角色，為各個領域培養年輕人才。」

Links to Portuguese-speaking Countries

FLL has always cultivated special links with Portuguese-speaking countries, especially Portugal, African countries, and East-Timor. As early as the late 1990s, Prof Garcia travelled to Mozambique as part of a UM delegation to develop cooperation with Educardo Mondlane University (EMU), which he visited again this year with UM Rector Yonghua Song. This time, he explored new areas for cooperation with EMU and witnessed the signing of a memorandum of understanding between the two universities.

According to Prof Garcia, there are many students from Portuguese-speaking Africa in FLL. For instance, in the Master of Law Programme in Portuguese Language, of which Prof Garcia is the coordinator, nearly half of the students come from these countries. 'After they [FLL students from Africa] graduate, the majority of them go back to their countries for a legal career. Some have even become ministerial-level officials in Cape Verde. Although in lesser numbers we also had students from East-Timor, some of them occupy relevant positions within the legal judiciary, the government, or the academia.' he says.

As the Macao Special Administrative Region is approaching its 20th anniversary, Prof Garcia believes that the city will become more prosperous, and he hopes the economic prosperity can benefit residents in a more balanced manner. He says, 'Meanwhile, UM and the FLL will continue to play an important role in Macao's development and nurture professionals in different fields.'

林玉鳳：在我的人生裡，很多機會都是澳大給的

Agnes Lam: My Life Is Filled with Opportunities Given by UM

文 | 葉浩男 · 圖 | 蔡俊祥 · 編輯部

Chinese Text | Davis Ip · Photo | Hasen Cai & Editorial Board

13歲首次踏足澳門大學、大學生時期見證回歸過渡期的轉變、過去20年作為學者與大學一同成長，澳大澳門研究中心主任、傳播系副教授林玉鳳說：「在我的人生裡，很多機會都是澳大給我的，接觸社會、投身傳媒業，又進入研究的世界，全都是因為澳大。」

Agnes Lam is the director of the University of Macau's (UM) Centre for Macau Studies and an associate professor in the Department of Communication. She visited UM for the first time when she was 13. Later, she attended college at UM and witnessed significant changes to Macao during the city's handover to China. Over the past two decades, Prof Lam has worked as a scholar at the university and has grown along with the institution. 'My life is filled with opportunities given by UM,' says Prof Lam. 'Thanks to the university, I could get involved in community affairs, work in the media industry, and later pursue research studies.'

難忘初到校園

林玉鳳中學時是學校舞蹈隊隊員，有一次到澳大的前身東亞大學表演，第一次感受大學校園的氛圍。「整個大學都有很多活動、文化很活躍，那時我來表演跳舞，有些大哥哥、大姐姐做話劇，好像到了另一個世界，覺得一定要讀大學。」

Unforgettable Visit to UM

Prof Lam was a member of a dance troupe in her secondary school. She experienced the university's atmosphere for the first time during a visit to its predecessor, the University of East Asia (UEA), for a dance performance. 'I remember there were many cultural activities at the university,' says Prof Lam. 'I was there to dance. Some older students were there



林玉鳳教授 Prof Agnes Lam

與澳大一同成長

1991年，已被政府收購的東亞大學改名為澳門大學，林教授當年成為中文學院中文傳意課程首屆學生，近距離看到將至的回歸如何影響本地高等教育。「那時很多課程都是為了培養本地人才而設，例如公共行政課程原先在日間用英文教學，不久就變成晚間以中文授課，主要是培訓公務員。」

就讀澳大時，林教授到了澳門廣播電視股份有限公司實習和工作，畢業後還留在該公司累積記者經驗，1997年回到澳大成為助教，翌年升為講師，同時仍在澳廣視兼任主持和監製，負責一個每週播出、名為「見證回歸」的電視節目，直至1999年。

「1997年我入職澳大時，我們不用交研究報告，1999年開始要做研究，當時的人事制度方面也有了變化，例如要求講師在指定年期內取得博士學位。」這些改變直接推動了她攻讀博士，研究澳門在中國近代報業史的角色。2015年，她的著作《中國近代報業的起點——澳門新聞出版史(1557-1840)》出版，填補了中國新聞史上澳門部分的歷史空白。

to do stage acting. The trip opened my horizons and I knew I had to go to college.'

Growing Together with UM

In 1991, UEA was acquired by the local government and was renamed 'University of Macau'. As one of the first cohort of students in UM's Chinese communication programme, Prof Lam witnessed how the imminent handover of Macao had an influence on higher education in the city. 'Many programmes were offered to nurture local professionals,' says Prof Lam. 'For example, the public administration programme was first offered as a daytime programme taught in English. It was then changed to a nighttime Chinese programme with the aim of training civil servants.'

As a UM student, Prof Lam interned at TDM, a public broadcasting services provider in Macao, and worked there as a journalist after graduation. In 1997, Prof Lam returned to UM as a teaching assistant and was promoted to the position of lecturer the year after. Concurrently, she was the TV host and executive producer of a weekly TV programme titled 'Witnessing the Handover', until the year of 1999.

'When I joined UM in 1997, faculty members were not required to submit research reports. Starting in 1999, we were required to conduct research. There were also changes in the personnel systems,' says Prof Lam. 'For example, lecturers were required to obtain a PhD degree within a certain period of time.' These changes encouraged her to pursue a PhD degree, for which she studied the role of Macao in modern Chinese press history. In 2015, Prof Lam published her book *The Beginning of the Modern Chinese Press History: Macau Press History 1557-1840*. The book compensated for the former absence of Macao in accounts of Chinese press history.

In the past two decades, Prof Lam and her colleagues established the Department of Communication. She once served as the coordinator of the Bachelor of Social Sciences in Journalism and Public Communication programme. Recommended by



林玉鳳教授於澳大經濟學系和澳門研究中心舉辦的「2019-2020年澳門宏觀經濟預測」發佈會上發言
Prof Agnes Lam speaks at a press conference on the *Macroeconomic Forecast for Macao 2019-2020*, which was jointly released by UM's Department of Economics and Centre for Macau Studies

這20年間，林教授還與同事建立了澳大傳播系，並曾主理該系的新聞與公共傳播學士學位課程。獲澳大推薦，林教授更在2012年到劍橋大學克萊爾學堂擔任訪問學者，這些都是她覺得難能可貴的經驗。

推動澳門研究

2017年，林教授當選澳門立法會直選議員，翌年由澳門研究中心代主任晉升為主任，以不同角色為澳門社會貢獻更多。她既高興，也感到任重道遠。她與同事去年起開始了一個五年計劃，期望為中心帶來新方向：「我想看看我們在『一國兩制』下的這種政治體制有沒有一些有價值、在國際上可以比較的經驗。現在我們規劃了很多新項目，也在建立很多資料庫、梳理過去的研究。」

記錄者與探索者

回望澳門回歸和之後的20年，林教授說：「我曾經很努力記下回歸時澳門人的思考、對未來的想象，有一個記錄者的角色。我也有一個探索者的角色，探索我們的歷史有甚麼可以抽取出來，幫助我們成為一個更好、更偉大的城市。我不敢說自己有甚麼突出的貢獻，也不是說很滿意自己做的事，而是每日都覺得可以做好一點、做多一點。」

UM, Prof Lam visited the University of Cambridge's Clare Hall as a visiting scholar. In her eyes, these experiences were very valuable.

Promoting Macao Studies

In 2017, Prof Lam was directly elected to the Legislative Assembly of Macao. The year after, she was promoted from interim director to director of UM's Centre for Macau Studies. Being able to serve the local community in different positions, Prof Lam is contented but at the same time, she has begun to feel the burden of her responsibilities. Last year, she and her colleagues began to develop a five-year plan with the aim of providing new directions for the centre. 'We want to find noteworthy experience in the international community that is comparable to the political system of Macao under the "One Country, Two Systems" policy,' says Prof Lam. 'We have created different projects and developed many databases to study research data from the past.'

Between an Archivist and an Explorer

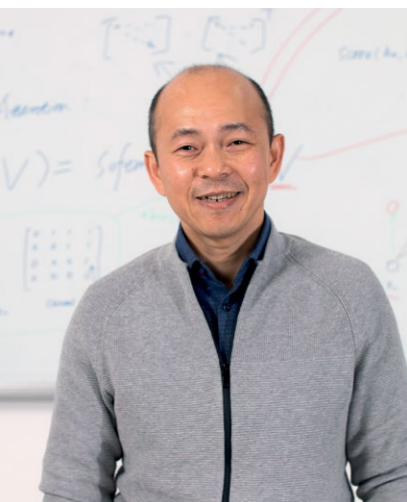
Looking back on the two decades after the handover of Macao, Prof Lam says that she once played the role of an archivist to record local people's thoughts about the handover as well as their vision for Macao's future. 'In addition to an archivist, I also see myself as an explorer. I want to dive deep into our history and extract elements that can help Macao develop into a better and greater city,' says Prof Lam. 'I can't say I have made significant contributions in my studies and I am not completely satisfied with the results. However, I hope to continue to do research and make improvements in my work little by little.'

黃輝：「中葡通」協助澳門回歸過渡

Wong Fai: PCT Facilitates the Transition of Macao

文 | 余偉業 · 圖 | 何杰平，部分由受訪者提供

Chinese & English Text | Kelvin U · Photo | Jack Ho, with some provided by the interviewee



1999年澳門回歸那年，全球首部中葡電子辭典在澳門大學誕生，澳大科技學院副教授黃輝成為澳門機器翻譯研究的第一人，為協助澳門回歸過渡作出了貢獻。今年澳門回歸20年之際，他與團隊發佈最新的「在線中葡英輔助翻譯平台」（UM-CAT），全力將知識轉化成產品，讓社會大眾受益。

In 1999, the year Macao returned to China, the world's first Chinese-Portuguese electronic dictionary (PCT) was launched at the University of Macau (UM) and Prof Wong Fai became a pioneer in machine translation research in Macao. This year marks the 20th anniversary of Macao's handover. Prof Wong and his team have yet again created a new record in machine translation—they developed UM-CAT, the world's first online Chinese-Portuguese-English computer-aided translation platform.

協助澳門回歸過渡

「中葡通」這一劃時代產物，輔助首屆澳門特區政府和民間機構處理海量有待翻譯的文件。賦予機器翻譯技巧，無異於要機器「能理解、會思考」語言，是人工智能技術中最難研發的課題之一，澳門回歸前沒有這方面的研究基礎。當時，黃輝教授的辭典一推出，就有800多個政府部門及企業註冊使用。「回歸前，澳門有大量官方文件有待翻譯，但卻沒有任何

Facilitating the Transition of Macao

A veritable epoch-making technology, PCT has served the first government of the Macao Special Administrative Region and the private sector in the translation of a substantial number of documents. Developing a machine translation system is in essence a process of teaching the machine to 'understand' and 'contemplate' language, which is one of the greatest challenges in the development of artificial intelligence technology. Before Macao's return to China, research in this area was virtually nonexistent. Soon after the launch of the e-dictionary,



黃輝教授的研究團隊獲首屆澳門科技獎技術進步獎
Prof Wong Fai's team receives the Science and Technology Progress Award at the first Macao Science and Technology Awards ceremony

軟件、系統去輔助翻譯，因此有需要開展相關項目的研發。」

2007年，時任葡萄牙總理蘇格拉底訪問澳大，讚揚澳大中葡雙語翻譯研究的成果，相信研究有助推動中葡友好合作。2009年，澳大成立「自然語言處理與中葡機器翻譯實驗室」（NLP²CT），由黃教授出任主任。今天，澳大多項機器翻譯研發已大力推動了中葡翻譯工作，有助中葡經貿文化交往。

與澳大同步成長

1991年，黃輝考入澳大，修讀軟件工程，他回憶道：「那時澳大已是澳門最高的學府，因此很珍惜當時入學的機會。」1995年，他以優秀成績獲澳大推薦到葡國科研機構INESC深造，負責為葡國軍方基地開發地圖資訊管理系統。1996年，黃輝回澳，並以澳大主要研究員的身分，聯合清華大學展開中葡機器翻譯的研究。

more than 800 government departments and private companies became registered users. 'Before the handover of Macao's sovereignty to China, a large number of official documents needed to be translated, but there was no software or system to aid the translation, so the development of the first e-dictionary was driven by a practical need,' says Prof Wong.

In 2007, during his visit to UM, then Portuguese President José Sócrates praised the university for its achievements in Chinese-Portuguese translation studies, which he believed would promote friendship and collaboration between China and Portugal. In 2009, UM established the Natural Language Processing & Portuguese-Chinese Machine Translation Laboratory (NLP²CT) and appointed Prof Wong as its director. The machine translation systems developed by UM over the years have indeed greatly facilitated Sino-Portuguese communication in business and cultural affairs.

Growing with UM

Prof Wong entered UM in 1991 to study software engineering. 'I cherished the opportunity to study at UM because back then it was already the best university in Macao,' he says. In 1995, he was recommended by UM to study at the Institute of Systems and Computer Engineering (INESC in its Portuguese acronym), a scientific research institution in Portugal, for his outstanding academic performance. At the INESC, he was responsible for developing a geographical information system for the Portuguese military. He returned to Macao the following year and was appointed by UM as a principal investigator for a research project on Chinese-Portuguese machine translation, jointly conducted by UM and Tsinghua University.

Prof Wong believes that the transitional period leading up to Macao's handover provided the perfect conditions for his team to develop cutting-edge technology in order to create the world's first Chinese-Portuguese machine translation system. He explains, 'First, unlike machine translation between Chinese and English, technologies for machine

黃教授相信，他的研究團隊是充分利用了澳門回歸前的「天時地利人和」，秉持著對前沿科技的追求，創新開發了中葡機器翻譯技術平台。「首先，與中英機器翻譯不同，中葡機器翻譯素材是一片空白，很多核心技術都需要自己一手一腳研發。其次，這是交叉學科的研究，離不開電腦和語言這兩大專業，當時澳大就有此優勢，人文學院葡文系師生從開發到資料輸入、校對和測試，都緊密參與。」回首這20年，澳大在培育機器翻譯人才上功不可沒，「不論澳門或內地，大家都知道大多從事葡文翻譯、機器翻譯的，都是澳大的徒弟，甚至徒孫。」

瞄準語音翻譯

2019年，澳門回歸20週年之際，黃教授與NLP²CT團隊推出「在線中葡英輔助翻譯平台」（UM-CAT），為中葡英雙語或三語互譯提供更專業、準確性更高的全文智能翻譯。團隊下一個目標是攻克中葡英語音翻譯領域。「語音翻譯也被認為是未來五年內最具商業潛力的。」黃教授透露，NLP²CT正積極研發「會議智能翻譯系統」，可滿足多場景同傳交互體驗，相關系統預計不久可供大眾使用。

translation between Chinese and Portuguese were virtually nonexistent. So we had to start from scratch and develop many core technologies by ourselves. Second, this is an interdisciplinary research area that involves computer science and language. Fortunately, UM had strong resources in both fields. Faculty members and students from the Department of Portuguese were involved in the entire process, from data input to proofreading and testing.’ Looking back, Prof Wong notes that UM has played a crucial role in cultivating professionals in machine translation. ‘Most of those who are now working in manual or machine translation that involves the Portuguese language in Macao or mainland China either graduated from UM or have been trained by our graduates,’ he says.

Next Goal: Voice Translation

The year 2019 marks the 20th anniversary of Macao’s handover to China. This year, Prof Wong and his team from the NLP²CT launched UM-CAT – the latest Chinese-Portuguese-English online translation system that can effectively assist professional translators by producing smart full-text translation with a high degree of accuracy. The team’s next goal is to tackle the challenge of voice translation between Chinese and Portuguese. ‘As a spin-off of machine translation, voice translation is considered to be the most commercially promising area in the next five years,’ says Prof Wong. Currently, the NLP²CT is working to develop a smart conference translation system that can accurately identify and translate the languages used in a multilingual conference to enhance the efficiency of the conference process. The system is expected to be launched for the mass market in the near future.

麥沛然： 在澳大學習和研究芯片20年

Elvis Mak: 20 Years of Studying Microchips at UM

文 | 葉浩男 · 圖 | 何杰平，部分由受訪者提供
Chinese & English Text | Davis Ip · Photo | Jack Ho, with some provided by the interviewee

澳門回歸20年，恰好是麥沛然在澳門大學學習和研究芯片的20年。他在1999年入讀澳大，今日已是國際頂尖的集成電路領域專家，更是首位澳門土生土長的國際電機電子工程師學會會士。「感激澳大給予我這麼大的研究空間，讓我實踐感興趣的事情。」

Macao has thrived over the past 20 years since its handover to China in 1999, when Prof Elvis Mak Pui In began his journey studying and researching microchips at the University of Macau (UM). An internationally acclaimed expert in integrated circuits, Prof Mak was the first Macao native to be elected a fellow of the Institute of Electrical and Electronics Engineers. ‘UM gives me great opportunities to study subjects of my interest, for which I am most grateful,’ he says.

「你不認真就輸」

麥沛然是澳大電機及電腦工程系教授、模擬與混合信號超大規模集成電路國家重點實驗室（研究）副主任、微電子研究院副院長。他說當初修讀電機及電子工程，完全是出於興趣。「本科給我的最大感受是打好基礎，從未知到知道這個領域。去到後期，我發現原來高層次的科學對研究人員的水平有很高的要求，不是認真就輸了」，而是你不認真就輸。」

Great Determination to Succeed

Prof Mak is a professor in UM’s Department of Electrical and Computer Engineering, associate director (research) of the State-Key Laboratory of Analog and Mixed-Signal VLSI, and associate dean of the Institute of Microelectronics. From the outset, he decided to study electrical engineering and electronics out of interest. ‘My undergraduate years opened my eyes to a new discipline, laying a solid foundation for my further study. I found that advanced scientific research is demanding. To succeed in research, you just can’t be too determined,’ he says.

麥沛然教授是首位澳門
土生土長的國際電機電子工程師學會會士
Prof Elvis Mak is the first native of
Macao to be elected a fellow of the Institute
of Electrical and Electronics Engineers



國家重點實驗室成就團隊

憑著一份興趣和認真，麥教授留校攻讀博士，2006年起在澳大任教，這段歷程不僅反映他的成長，也折射了澳門回歸後的變化。他初到澳大時，澳門在電子工程研究上可謂在早期階段，但隨著回歸後經濟日益增長，政府也加大了對科研的支持，包括在2004年設立科學技術發展基金。「如果沒有科技基金的支持，我相信沒有辦法做到比較好的成果。」

2003年，麥教授的導師、澳大副校長馬許願教授創建模擬與混合信號超大規模集成電路實驗室，2011年升格為國家重點實驗室，麥教授一直參與其中。「有這個認可，科技基金便可以更大力地支持我們的研究，我們在收生和招聘方面也有長足進步。」

不過，在澳大2014年遷入現時的校園前，位於氹仔舊校園的國家重點實驗室地方較少，限制了它的發展空間。「當時沒有人預期會發展到今天的規模。沒有新校園，就沒有今天的發展和規模，現在這裡有10多位老師，80多位學生，其中有近60名都是博士學生，如果一定要量化的話，我們的規模是當時的5至10倍。」

With passion and determination, Prof Mak remained at UM for his doctoral research and became a faculty member in 2006. His personal growth coincided with some remarkable changes in the local society. With the city's steady economic growth since the handover, the local government stepped up its support for scientific research and established the Science and Technology Development Fund (FDTC in its Portuguese acronym) in 2004. 'Without FDTC's support, it would have been difficult for us to achieve what we have achieved,' says Prof Mak.

Stronger Team at the State Key Laboratory

In 2003, UM's Vice Rector Rui Martins, who was Prof Mak's supervisor, founded the Analog and Mixed-Signal VLSI Laboratory, which was elevated to the status of a state key laboratory in 2011. Prof Mak says, 'After gaining this recognition, we received greater support from the FDTC and saw much progress in the recruitment of students and staff.'

Before UM's relocation to its current campus on Hengqin Island in 2014, the state key laboratory on the old Taipa campus lacked space, which hindered its development. 'Nobody thought that we would reach our current size,' says Prof Mak. 'Without the new campus, we would not have achieved our current results and size. Today, we have over ten professors and 80 students, 60 of whom are PhD students. I would say that our size has increased fivefold or tenfold.'



澳大的芯片研究團隊赴美國參加第66屆國際固態電路研討會並發表研究成果
UM's microchips research team present their findings at the 66th International Solid-State Circuits

培養學生作長遠貢獻

麥教授歷年來發表逾260篇學術論文，備受國際肯定，但他認為論文寫得再好，終究也會過時；相反，培養出好的學生，就能讓他們在社會立足、持續地貢獻社會。過去10多年，他指導了超過20名博士生，畢業後都在世界一流的大學、企業工作。「我有一位學生剛畢業就獲美國的公司聘請，年薪150萬澳門元。美國公司為甚麼要請一個中國人做工程師呢？答案很簡單，就是我們的學生水平達到他們的要求。」

麥教授說，美國企業願意付出優厚的薪酬，容易吸引最一流的科研人才，但他期望實驗室可以協助粵港澳大灣區留住科技人才。「將優秀的人才留在灣區，創造企業、創造頂尖的研究團隊，是未來5至10年希望做的。在澳門的老師可以是學生技術的搖籃，我們的畢業生是貢獻科研的中堅，然後再為灣區孕育成熟的產業。」

Nurturing Students for Long-term Contribution

With over 260 published journal papers, Prof Mak's achievements have been recognised internationally, but he thinks that academic papers, no matter how well-written they are, will eventually become outdated. What truly matters is nurturing students who can make consistent contributions to society. He has supervised over 20 PhD students, all of whom are working at world-class universities or companies. 'A former student joined an American company right after his graduation, with an annual salary of 1.5 million patacas. Why would an American company want to hire a Chinese engineer? It is simply because our graduates meet their requirements,' he says.

While American companies pay a highly competitive salary to attract the best researchers, Prof Mak hopes that the state key laboratory will help the Guangdong-Hong Kong-Macao Greater Bay Area to retain the best scientists and technologists. He says, 'In the next five to ten years, we hope to encourage talented people to stay in the Greater Bay Area, as well as to nurture enterprises and top-tier research teams. Professors in Macao will help our students build up their skills and knowledge. These students can then make scientific contributions on the frontline and create a well-established industry in the Greater Bay Area.'



在澳大讀書的「回歸寶寶」

UM Students Born in 1999

文 | 張愛華、盛惠怡 · 圖 | 張愛華、資深校園記者陳長能，部分由受訪者提供

Chinese Text | Ella Cheong, Debby Seng · Photo | Ella Cheong, Senior UM Reporter Lyon Tan, with some provided by the interviewees

1999年出生的「回歸寶寶」伴隨澳門特區一起成長，對澳門這片土生土長的地方充滿感情。這批年輕人今天已經長大成人，進入大學學習，當中有些考入了澳門大學。不久將來，他們將會投身社會、成為支撐澳門未來發展的新力量。回憶過去20載與澳門的共生歲月，這班年輕人對個人的成長、澳門社會的發展和大學的教育有何感受？

In 1999, Macao was handed over to China and the Macao Special Administrative Region (SAR) was established. Those who were born in Macao in 1999 have, in a sense, grown together with the city. Today, these young people have reached the age to attend college, and some of them have chosen to study at UM. Soon, they will graduate and become pillars of society. In this article, we interview some of these students to learn their thoughts about their personal growth and the development of Macao over the past two decades, as well as their expectations for their university education.

澳門社會發展迅速

工商管理學士學位課程（環球商業管理）三年級學生盧志強是家中第三個小孩，母親生產前兩胎時都比較困難，生第二胎時甚至輸了很多血，「但我出生時一切都很順利。」回想20年與澳門特區共同成長的路，他最大感受是「澳門社會發展迅速，以前家裡生活比較艱苦，但現在生活質素就提升很多。」

盧志強認為，大學像個小型社會，所有事情都要靠自己，從中能學會爭取和保護自己的權益，這些經驗相信日後踏入社會時能派上用場。他說：「澳大擁有非常豐富的資源，加上在這裡認識的朋友對未來工作會有很大幫助。澳門有這麼多所大學，但國家唯獨批一塊地給澳大興建新校園，可

Rapid Development of Macao

Lou Chi Keong, a third-year student of the Bachelor of Business Administration program (Global Business Management), is the third child in his family. His mother endured difficult labour experiences when giving birth to her first two children, with the second birth even requiring a massive blood transfusion. But Lou's birth was very smooth. Summing up the greatest changes in Macao and his own family over the past two decades, Lou says, 'Macao has developed rapidly. Life used to be hard, but now our quality of life has improved substantially.'

He adds, 'A university is a microcosm of society, where you have to rely on yourself for everything. In the process you learn to advocate for yourself and protect your rights and interests. I believe these skills will be very useful when I enter the workforce. UM has a lot of resources, and the friends we make here will be a valuable asset for our future career

盧志強 Lou Chi Keong





李健聰 Lei Kin Chong

見國家和澳門政府對澳大的重視。過去20年，澳大跟隨國家的步伐飛速發展，對澳大人來說是一大福祉。」

激動人心的轉變

政府與行政學系二年級學生李健聰回憶1999年出生那年一切風平浪靜，但在此後20年卻見證了澳門激動人心的轉變。「20年間，澳門經濟、政府和民生福利不斷進步，也推動了我們這一代年輕人勇敢追逐夢想，做自己開心、喜歡的事情。」

李健聰以「回歸寶寶」形容自己與澳門的關係。他坦言讀大學是希望收獲專業知識、掌握多點技能、發掘興趣，這是進入社會的基本條件，「我希望將來做自己喜歡的工作，而不是單純為了金錢。」

發揮中葡雙語優勢

澳大從2014/2015學年起開辦五年制法學士學位課程（中葡雙語授課），加大力度培養高質素的中葡雙語專業

development. There are so many universities in Macao, but UM is the only one to be allocated a piece of land for the construction of a new campus. This shows UM is highly regarded by the central and Macao SAR governments. Over the past two decades, UM has developed rapidly, riding the wave of fast economic growth of China, which is indeed a blessing for everyone at UM.'

An Exciting Transformation

Lei Kin Chong is a second-year student in the Department of Government and Public Administration. When he announced his initial arrival in the world with a noisy cry, Macao was just a quiet, sleepy town. But over the past two decades, he has witnessed exciting changes in almost every arena of society, including economy, governance, and quality of life. 'These changes afford us young people the luxury of chasing our dreams and doing what we love to do,' he says.

Lei hopes to discover his interests as well as to acquire professional knowledge and skills at UM. He says money will not be his sole consideration in the choice of jobs; he hopes to find a job that he genuinely enjoys.

Bilingual Proficiency a Competitive Advantage

In the 2014/2015 academic year, UM launched a five-year bilingual bachelor of law programme, conducted in both Chinese and Portuguese, as part of an intensified effort to train high-calibre, bilingual professionals to support Macao's development into a service platform for trade cooperation between China and Portuguese-speaking countries. Leong Weng lan is a third-year student enrolled in the programme. She thinks the programme can help her gain a better understanding of Macao's legal system. 'Also, bilingual proficiency will give me a competitive advantage on the job market,' she says.

Leong feels very proud of Macao's rich cultural heritage. She says, 'When you walk on the streets, you could see the influence of Portuguese culture everywhere, but you could also see the influence



梁穎欣 Leong Weng lan

人才，配合澳門建設中國與葡語國家商貿合作服務平台。就讀該課程三年級的梁穎欣認為，在澳大就讀中葡雙語法律有助她更瞭解澳門法律的整體情況，「我還可以利用中葡雙語這一優勢，將所學的知識與實際情況結合，令未來事業有更好的發展。」

澳門中西薈萃、多元文化的面貌也讓梁穎欣倍感自豪，她說：「在街上很容易找到中葡文化交流的歷史痕跡，同時澳門也充滿中國傳統文化，這些獨特的多元文化背景，讓澳門在回歸後擔當中國與葡語國家的橋樑方面，發揮了重要角色。」

高等教育里程碑

教育學院小學教育專業三年級學生王斯婷認為，澳門20年來最大的變化是

of traditional Chinese culture. Because of this unique cultural diversity, Macao was able to play the important role of a 'bridge' that connects China and Portuguese-speaking countries after Macao's handover. '

A Milestone in Higher Education History

Wong Si Teng is a third-year student in the Faculty of Education, majoring in primary education. She says the greatest change Macao has experienced over the past two decades is its transformation into a vibrant cosmopolitan city. One event that stands out in her memory was Typhoon Hato in 2017. 'After the typhoon, organisations and individuals in Macao voluntarily helped to clean up the streets and distributed food to senior citizens and people with disabilities living on higher floors. I was one of the volunteers, and the sense of unity we felt at the time was deeply moving,' she recalls.



王斯婷 Wong Si Teng

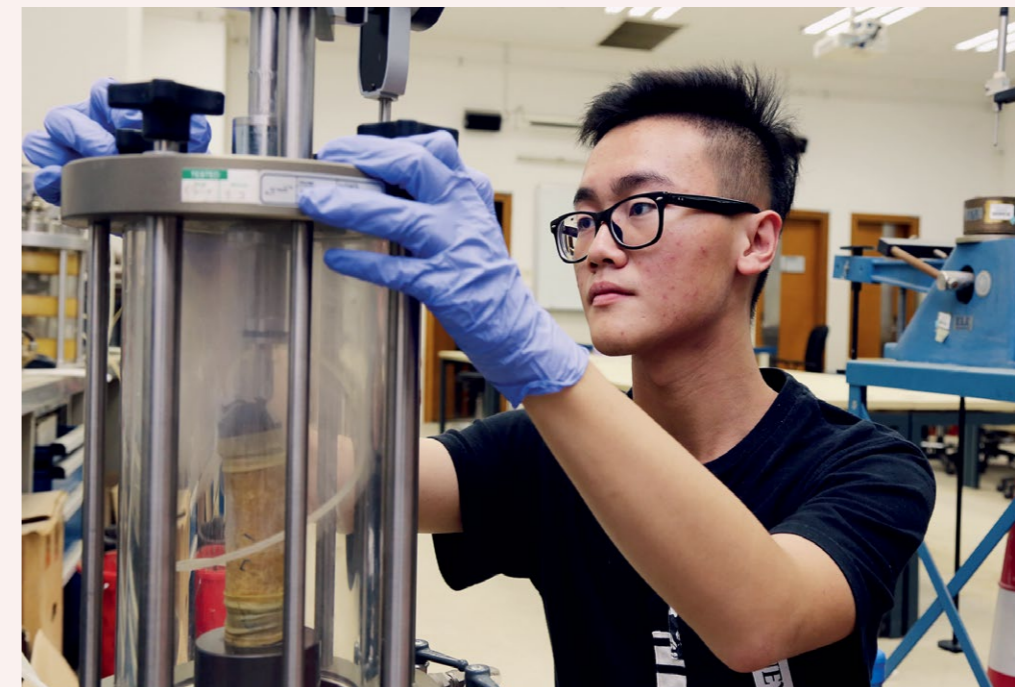
「由一個小漁村演變成五光十色的小商業城。」這些年來，她印象最深的是2017年颱風「天鴿」襲澳：「當時各個機構及市民都自發清潔街道，送糧食給住在高樓的老人家及傷殘人士，我亦有參與其中，澳門人團結的力量讓我十分感動。」

王斯婷選擇留在澳門學習的原因是：「澳門是我長大的地方，我欣賞它的風味，澳大偌大的校園及其校園生活深深吸引著我。」

在國家和澳門特區政府支持下，澳大於2014年遷往位於廣東省橫琴島的新校園。王斯婷認為，這是澳門回歸後高等教育發展的一個重要里程碑。她說：「新校園很大，教學設備和資源更為完善。澳大現時有七個學院，十個住宿式書院和三間國家重點實驗

When asked why she chose UM, she says, 'Because I grew up in Macao. I like it for its uniqueness. The big campus and a genuine college experience with on-campus accommodation were also a big draw for me.'

With the support of the central and Macao SAR governments, UM relocated to the current campus on Hengqin Island, Guangdong province, in 2014, a move which Wong says was an important milestone in Macao's higher education history. She explains, 'The campus is larger, with better facilities for teaching and learning. Currently, we have 7 faculties, 10 residential colleges, and 3 state key laboratories, which greatly improve the quality of teaching and attract more and more talented people, faculty and students alike, from around the world.'

李嘉俊
Lei Ka Chon

室，這些都能大大提升學術水平，吸引人才來澳，促進澳門教育發展。」

增教育資源助學生發展

土木及環境工程系三年級學生李嘉俊說，澳門回歸後，政府持續增加投放在教育的資源，例如澳大遷入新校園後全面引入住宿式書院制度，實現全人教育：「學生不能只專注學習書本的知識，大學期間應該擴闊社交圈子。書院正好提供社群學習的環境，讓學生在課後認識很多來自不同國籍、年級和專業的同學。」

李嘉俊是一名國際象棋好手，曾代表澳門參加亞洲室內運動會等賽事，亦活躍於多個學生社團。他說：「澳大擁有豐富資源，又重視學生的國際視野，在這裡學習可以擴展人脈，這是澳大學生將來就業或升學時的一大優勢。」

Increased Resources to Support Students' Development

Lei Ka Chon is a third-year student in the Department of Civil and Environmental Engineering. He feels that since Macao's handover, the SAR government has consistently increased its investment in education, one example of which is its support for the residential college system implemented at UM after the university's relocation to the current campus. Lei praises the RC system, saying: 'Students should not focus exclusively on studying textbook knowledge; they should also try to make more friends. This is where the RC system comes in. It provides an ideal environment for community and peer education, and allows students to meet people from different countries and backgrounds.'

Lei is an excellent chess player. He has represented Macao at various chess competitions, including the Asian Indoor Games. He is also an active member of student organisations. He believes that UM's abundant resources and its emphasis on global experience and global perspective will give the students a major competitive advantage whether they choose to find a job or pursue further education in the future.



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觀看訪談片段
Scan the QR code to watch
the video interview





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