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拼出未來

The Game Changer 物理博士築構共享新世界

A Fusion Physicist's Utopian Experiment

人到而立之年，事業得意，卻發現現實與理想漸行漸遠，應如何是好？是要逐夢，抑或妥協，認定一切別無選擇？在理想和現實之間，開源生態計劃（OSE）創辦人兼執行總監 Marcin Jakubowski 博士選擇了理想。原是物理研究生的他從實驗室走出來，推出傳授硬件建設的開源（開放原始碼）平台，讓所有人過自足的現代生活。Jakubowski 博士應本年度博群大講堂邀請，於10月24日親臨中大，發表題為「組裝未來：一個物理博士的社會實驗」的主題演說，闡述「開源生態」的理念和實踐。

Jakubowski 博士於2003年創辦OSE，並於2008年提出「全球村落建設工具組」（GVCS）的構想。GVCS涵蓋五十種建設現代文明必不可少的器具，如拖拉機和三維打印機等。用家只需按照網上發布的設計圖組裝，便可製造各種機械。目前OSE已公開三十二種工具的雛型和設計，預計整個工具組將於2028年完成。

廿年一覺美國夢

OSE的創立，與Jakubowski博士的人生歷程息息相關。生於知識分子家庭的他，從小深信科學與知識能惠澤普世。十歲時，他離開物資匱乏的共產波蘭，隨家人移居美國。多年後，小男孩成為在威斯康辛大學研究核聚變的物理學家。

然而，科學和知識並沒有如他所想造福所有人；反之，世上不少地方仍處匱乏之中。對學術抽離現實世界感到失望的Jakubowski，從象牙塔回歸土地，實踐永續農業，卻發現沒有適當的工具耕作。為製造生產工具，OSE由是誕生。

開放科技和知識

Jakubowski的開源平台有兩項破格之舉：其一，它以開源形式運作；其二，它專注硬件建設。開源形式的風險甚高，因它難以如研發企業一樣，以專利權保障收益。再者，雖然現今市場也有開源企業，如開源作業系統Linux，但這些企業大多集中軟件，而不是硬件。OSE公開硬件製法近乎異想天開，因人類從未有此傳統，而且開源硬件須一一紀錄築構器具的步驟，過程極為繁瑣。

講堂上的社會實驗家對於逆流而上沒有半點憂慮：「科技命定論並不存在。科技的選擇受環境影響，與政治和社會狀況密切相關，我們絕對有能力改變。」Jakubowski開放科技知識，源自他深信知識的巨大力量，而其終極意義應是賦予人類能力，創造美好生活。

OSE如何賺取收益，在市場上生存？Jakubowski博士將開源平台和商業模式區分開來：「開源平台是分享知識、共同發展事物的方法，在其上需要建立適合它的商業模式。」OSE以工作坊的方式營運：一方面，用家可根據平台發布的設計圖，自行製作GVCS任何器具；另外他們也可參與OSE的建築工作坊。以建造一千四百平方呎基礎規格環保家居的工作坊為例，為期五天的工作坊，每位參加者只須繳付五百美元學費。若要買下建成的屋，則只須多付三萬美元材料費。整筆費用為三萬五百美元，價格僅為市場同等房屋的一小部分。

感悟手作的深情

OSE為何聚焦硬件？Jakubowski在講座尾聲動情解釋：「當你用雙手創造真實可感的東西，你會與世界建立聯繫，而這是不少人在現今網絡世界所失落的。這其實是人的本能，因為歸根究底，這正是人與哺育他的大自然——石頭、陽光、植物、泥土和水的連繫。」

Jakubowski博士為博群大講堂系列首位來自西方和純科學出身的講者。博群全人發展中心主任伍慧明女士說：「本年度邀請Jakubowski博士主講，是想吸引以往較少參與博群活動的科學和工程學生。他對開源、知識共享和團隊合作的創新意念和理解，與博群大講堂和博群計劃關懷社會、啟迪思考的宗旨不謀而合。」

「OSE貌似簡單，卻蘊含對現今教育制度、社經秩序和價值觀的深刻批判。」生命倫理學中心總監區結成醫生在講堂後指出。「Jakubowski博士將科技開放，讓所有人掌握生產工具，藉此抗衡現代社會的社經不平等。或許他的家庭背景、鐵幕下的生活經歷，以及強烈的正義感促使他將知識和科學帶給每一個人。」社會學四年級學生郭怡欣則欽佩Jakubowski博士貢獻世界的精神，而這也是她身為環保和社區文化建設者的志向。

或有聽眾質疑，這位核聚變物理學家的社會實驗能否在消費主義盛行的香港實現。但是，我們豈能因事情不尋常易察，便貿然否定？正如這位社會改革家在講堂開端引用雨果的說話：「沒有甚麼力量大得過乘時而起的思想。」

Should the world drift in a way farther away from your ideal picture as days go by, what will you do? Are you to take up arms against it, put up with it stoically or pretend that where you are is already the best of all possible worlds? Dr. **Marcin Jakubowski**, Founder and Executive Director of Open Source Ecology (OSE), opts for the first. A physicist-turned-entrepreneur, he contests the established order of things through launching an open source platform of hardware designs that enables the building of a small modern civilization. As the speaker of this year's University Lecture on Civility (ULC), Dr. Jakubowski elaborated on the philosophy and practice of his social experiment on 24 October under the theme of 'Assembling the Future: A Social Innovator's Intriguing Project'.

Founded by Dr. Jakubowski in 2003, OSE went ahead to posit a Global Village Construction Set (GVCS) in 2008, which consists of 50 essential machines, such as tractor and 3D printer, for modern life to exist. By following the blueprints published on the web, all the machines—and everything derived from them—can be built with your own hands. Till now, prototypes of 32 machines have been published on the web, with the whole GVCS due to be drawn up in 2028.

Almost an American Dream

The founding of OSE can be traced back to Dr. Jakubowski's life experiences. Born to a family of intellectuals, he has prized the power of science and knowledge to do good to all from a young age. Leaving behind the austere communist Poland for the US at the age of 10, the little boy was later to become a fusion physicist conducting research at the University of Wisconsin.

Science and knowledge, however, were not powerful enough to do good to all, as he discovered that deprivation still plagued the world he was in. Alienated from his studies which deal in the abstract, and disillusioned with the ivory tower, he returned to Mother Earth to practise sustainable farming, only to discover that he needed basic tools to succeed. This marked the birth of OSE, a collaborative innovative platform where everyone can study, modify, distribute, make and sell the designs or hardware that derive from them.

Technology and Knowledge Democratized

Dr. Jakubowski's brainchild is daring on two counts. First, it is an open source enterprise; second, it focuses on hardware. The stakes of open source are high, as it goes against the grain of R&D which thrives by means of patents. Further, even though we already have a lot of things in open access such as Linux, the open source provider of codes for operating systems, they are mostly for software, not hardware. OSE's devotion to hardware-making borders on the unthinkable due to the want of an open source hardware tradition, and the difficulty inherent in the documentation of the building steps.

The open hardware advocate, however, has no qualms about defying the established practices. 'There is no such thing as technological determinism. Technology is totally context-dependent, subject to political, social and other forces in society. We have a lot of power in changing it.' His resolve to go down a road less travelled—to open technology to all—is grounded in his belief in the absolute power of knowledge, and its ultimate purpose in empowering people to provide for themselves.

The question of money, however, will not go away with noble intentions. How can OSE generate revenue and sustain itself? To this question, the agent provocateur drew a distinction between an open source platform and a business model. 'Open source is a methodology for developing things collaboratively. It gives rise to its own business model.' The business model of OSE takes the form of workshops: while you can construct any tool in the GVCS by yourself following the open blueprints, you may also join OSE's building workshops. Let's say you join the workshop for a 1,400-square-foot seed eco-home. The workshop takes only five days to build an eco-home. US\$500 is all you have to pay for tuition. By paying US\$30,000 more for the building materials, you can take



▲ Jakubowski博士與隊友建成首部拖拉機
Dr. Jakubowski and teammates celebrate building the first tractor

home the finished eco-home. The total sum—US\$30,500—is much less than what you'd pay to purchase a house on the open market.

Giving Back DIY Its True Meaning

Why is hardware made the focus of OSE? Dr. Jakubowski explained it towards the end of the lecture: 'When you use your hands to do real and tangible things, there is a connection which a lot of people have lost today in the virtual world. But actually it is something deeply wired in us, as ultimately, this connection is to the abundant resources—the rocks, sunlight, plants, soil and water that feed us.' Hardware effects tangible change in people's lives like no other.

Dr. Jakubowski is the first speaker in the ULC series that comes from the West and with a pure science background. Ms. **Irene Ng**, Director of the I-CARE Centre for Whole-person Development that organized ULC, said, 'By inviting Dr. Jakubowski to be the speaker of this year's ULC, we hope to attract more students and lovers of science and engineering who have rarely been I-CARE supporters. His innovative takes on open source, knowledge sharing and collaborative way of working accord well with ULC and I-CARE's visions.'

'Simple at first glance, Dr. Jakubowski's blueprint is a radical rethink of our education, socioeconomic and value systems at heart,' remarked Dr. **Derrick Au**, Director of the CUHK Centre for Bioethics, after attending the lecture. 'His project is pursuing a democratization of technology, liberating the means of production to counter-act the gross socioeconomic inequity in our world. Perhaps his familial background and life behind the Iron Curtain and a strong sense of justice make him feel that knowledge and science should be open to benefit all.' **Emily Kwok**, a Year 4 student in Sociology at CUHK, was most impressed with Dr. Jakubowski's determination to serve the world, an aspiration she shares as a green and community advocate.

Some audience members, however, might remain skeptical of the application of the fusion physicist's social experiment to Hong Kong, a place known for its unbridled consumerism. But can anything be ruled out simply because it is not in plain view yet? As the social visionary said at the beginning of the lecture, citing Victor Hugo, 'Nothing is as powerful as an idea whose time has come'.

Amy L.



▲ Jakubowski博士(右)及地理與資源管理學系伍美琴教授在問答環節與觀眾交流
Dr. Jakubowski (right) and Prof. Ng Mee-kam of the Department of Geography and Resource Management at Q&A session



講座足本重溫
Scan to revisit the lecture



果核解密

鍾思林破解水果熟成基因密碼

Photo by ISO Staff



蘋果人人愛吃，營養師吃蘋果時會想起它維他命、纖維、礦物質、植化素和抗氧化物豐富；進化植物學家則會因為知道肉質水果歷史其實只有八千萬年，比乾果遲很多而莞爾；鍾思林吃蘋果時，可能會因最近他在水果熟成的粒子研究得出豐富成果而吃得更開心。

肉質水果比乾果在物種繁衍上享有優勢，因為它們營養豐富的肉質，可以解渴充饑，更能吸引動物採食，從而把種子散播及遠。長久以來，科學家都希望解開肉質水果熟成的謎團。如人類胚胎經歷妊娠，然後分娩一樣，大自然似乎早早寫下了計算天時地利、締造有利瓜熟蒂落條件的程式。

假如這個神秘過程的面紗得以揭開，我們除了知道甚麼令到水果在熟成時出現體積大小以及色、香、味、質地等顯著改變外，也可能明白自然界如何繁衍出這麼多水果品種。

中大生命科學學院的鍾思林教授，在一個名為fruitENCODE的項目中帶領一個集英美、西班牙及阿根廷科學家的團隊，致力編纂肉質水果功能元素的完整註解，以解開水果熟成的謎樣過程。

有十一種水果的基因組已被完全序列出來，它們是：蘋果、梨、蜜瓜、桃子、木瓜、香蕉、西瓜、葡萄、草莓、番茄和黃瓜（後兩者在植物學上屬水果）。當中一些屬所謂「更性水果」，因為要依賴乙烯（一種植物荷爾蒙）來熟成。非更性水果則不靠乙烯來熟成。

鍾教授的fruitENCODE團隊，研究這十一種水果進化的遺傳學及表觀遺傳學基礎。他們大規模繪畫基因表現數據及DNA甲基化的輪廓，和比較組蛋白修改和可達染色質區域，找到三種控制水果熟成的正回饋回路。他們的發現已在著名學術期刊*Nature Plants*刊登。

在大約一億四千五百萬至六千六百萬年前的白堊紀後期，蘋果、梨和番茄經歷了「全基因組倍增」（基因組的大小增加了兩倍甚至三倍），它們利用從祖先倍增得來的「花器官同源基因」（決定花甚麼部分演化出甚麼器官的基因）演化出果實。開始時，某一個「轉錄因子」（控制基因會不會及何時給

激活起來的一種蛋白質）直接黏合上生產乙烯的基因，以及與熟成特徵有關的其他基因。結果觸動了其他的轉錄因子，這些轉錄因子又黏合上最初的轉錄因子，如是者周而復始，形成一個正回饋回路，確保並維持着乙烯的合成。

在蜜瓜、桃子和木瓜的演化過程中，並沒有出現全基因組倍增，所以它們並無法使用前述幾種水果的乙烯生產機制。它們依靠的是控制植物組織衰老的基因來形成另一個正回饋回路，生產乙烯以幫助熟成。

另一種經歷過基因組倍增的單子葉品種更性水果——香蕉——則兼容並蓄，既利用花器官同源基因，也利用控制衰老的基因來製造乙烯，形成另一個正回饋回路以達熟成目的。研究中的其他水果——西瓜、黃瓜、葡萄和草莓，則進化出完全不依賴乙烯來熟成的機制。

研究團隊也發現一個在動物基因中主要調控細胞分化的表觀遺傳學標記——H3K27me3，其實在水果的熟成過程中也扮演一個重要的監控角色。它的作用便是防止植物中的熟成基因過早啟動，令植物不致早熟而影響種子的傳播。

類似H3K27me3的標記，也在不少水果的祖先品種的熟成基因中找到，顯示包括番茄、桃子和香蕉在內的水果，除了自祖先承繼生產乙烯的正回饋回路，還有表觀遺傳學標記，在熟成過程中發揮作用。

假若花器官同源基因和抑制發育基因是裝載熟成資訊的數據，那麼H3K27me3便是軟件，決定基因物質何時以及如何投入工作。正如鍾教授所說：「基因組就如電腦硬件，與生俱來，不可逆轉；表觀基因組則是軟件，可以編寫甚至再編寫。」

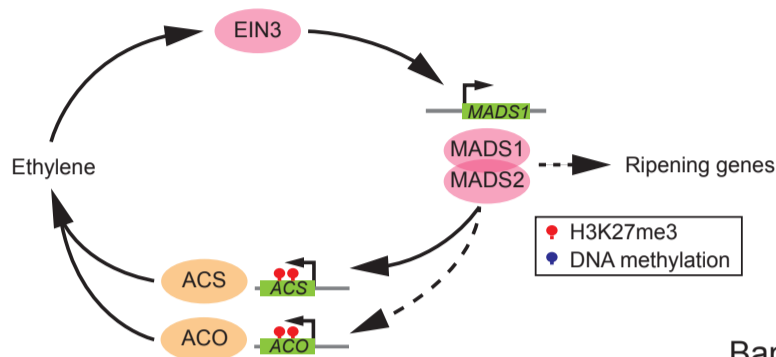
研究團隊弄清了水果熟成的分子肌理，有助研植出更富營養、更耐儲存、更受消費者歡迎的水果品種，長遠而言對食物來源的質素及穩定有莫大好處，對水果愛好者來說也是好消息。

鍾教授除了一般水果外，特別喜歡車厘茄和火龍果。他下一步大概會切開這兩種水果來看個究竟了。

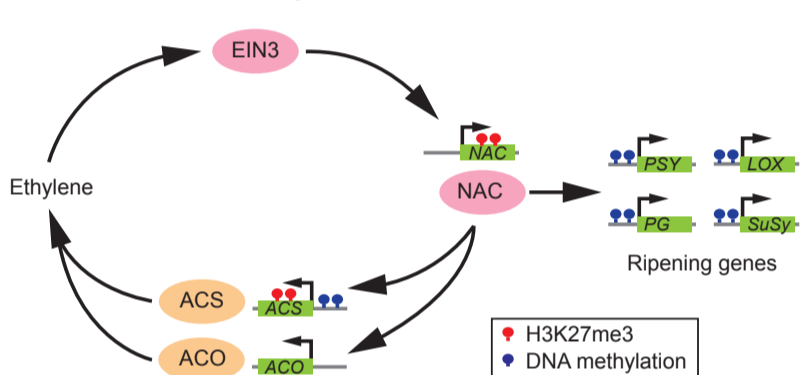
The Fruit Cracker

How Silin Zhong decodes fruition in nature

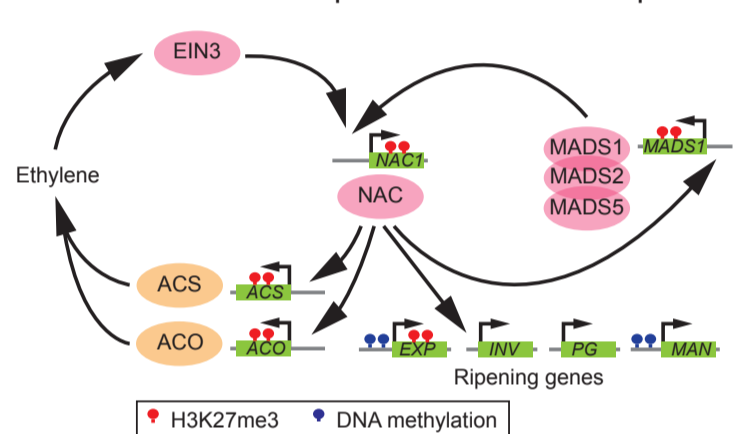
Apple MADS-type positive feedback loop



Peach NAC type positive feedback loop



Banana dual positive feedback loop



When a nutritionist bites an apple, its richness in vitamins, fibres, minerals, phytochemicals and antioxidants must be in her mind. When an evolutionary botanist bites an apple, she might take secret pride in her specialist knowledge that fleshy fruits only developed 80 million years ago and dry fruits have a much longer history. When **Silin Zhong** bites an apple, his enjoyment of the fruit is perhaps sweetened by his recent scientific finding of its ripening mechanism on the molecular level.

Fleshy fruits, though a latecomer in evolutionary terms, enjoy advantages in the propagation of the species over the dry varieties in that their nutrient-rich fleshy contents provide better incentives for animals to eat them and thereby spread the seeds to far-off places. Scientists have long wanted to fathom the mechanism which regulates the ripening of fleshy fruits. Like the gestation of a human foetus followed by labour, nature seems to have encoded when and under what conditions a fruit should ripen.

If the small prints of the genetic basis of this process can be made legible, we can understand better what happens and why despite the great variety in fruits they all seem to go through changes in size, texture, colour, taste and smell in ripening, followed by eventual decay.

Prof. Silin Zhong of CUHK's School of Life Sciences leads an international team of scientists from the US, the UK, Spain and Argentina in the fruitENCODE project which aims to provide a comprehensive annotation of the functional elements in fleshy fruits in order to crack the mysterious process of fruit ripening.

The genomes of apple, pear, melon, peach, papaya, banana, watermelon, grape, strawberry, tomato and cucumber (the last two, though not often viewed as fruits, are indeed fruits in botanical terms) have been fully sequenced. Some of these fruits are climacteric fruits, so called because their

ripening is facilitated by ethylene, a kind of plant hormone. Non-climacteric fruits do not depend on ethylene to ripen.

The fruitENCODE team studied the genetic and epigenetic bases of the evolution of these 11 fruits. By means of large-scale profiling of gene expression data and DNA methylation, and mapping of histone modifications and accessible chromatin regions, the team was able to identify three types of positive feedback loop that govern their fruit ripening processes. Their findings were recently published in *Nature Plants*.

Apple, pear and tomato experienced recent whole genome duplication (doubling or even tripling their genome size) at the end of the Cretaceous period (145–66 million years ago). They evolved their fruits by using those duplicated floral organ identity genes (genes that specify the identity of the different organs of a flower) of their ancestors. In these fruits, a certain transcription factor (protein that controls if and when a gene gets activated) directly binds to genes that signal the production of ethylene and to others that relate to ripening characteristics such as softening and colour change. The result further triggers other transcription factors which come full circle to bind with the original transcription factor and so on, thereby starting a positive feedback loop that enables and sustains ethylene synthesis.

Melon, peach and papaya did not have the luxury of whole genome duplication during the late Cretaceous period, and therefore have not inherited the first group's ethylene-production kit. They instead synthesize ethylene by converting their existing gene controlling senescence (ageing of the plant) to form a different positive feedback loop for the sustenance of ethylene synthesis.

The most eclectic of the bunch, banana, a climacteric monocot species with a history of genome duplications, reaches ripening by a combination of the two: using both the floral organ identity and the senescence genes. The

non-climacteric fruits in the study—watermelon, cucumber, grape and strawberry—have developed their own system of ripening independent of ethylene.

What the team also found is that the epigenetic mark H3K27me3, which represses key developmental genes in animals, plays an important regulatory role in the ripening process of fruits, too. It acts as a braking device that targets key ripening genes in plants to prevent premature ripening which may be undesirable in terms of the survival of the seeds.

Marks similar to H3K27me3 are found in the ripening genes of the ancestral plant species, suggesting that in their evolution, fruits like tomato, peach and banana have not just inherited the type of positive feedback loop from their ancestors but also their epigenetic marks to regulate ripening.

If the floral organ identity genes and the senescence genes are like data coded with information that bears upon ripening, H3K27me3 would be like software which tells when and how the genetic materials should behave. In Professor Zhong's words: 'Genome is like hardware; it is given and fixed. Epigenome, on the other hand, is like software; it can be written and rewritten.'

By elucidating the genetic and epigenetic mechanism of fruit ripening, the team's findings could pave the way for a healthier and steadier food source in future. With greater understanding of the genomes of fruits and their ripening regulators, it is possible to manipulate and engineer the regulatory components in gene expressions to enhance their nutritional value, consumer appeal and shelf life. This is good news to fruit-lovers across the globe.

Professor Zhong loves fruits in general and cherry tomato and dragon fruit in particular. He may be looking to sink his teeth into their genomes next. 🍷

T.C.



首位華人獲歐洲腫瘤學會頒發「終身成就獎」

First Chinese Bestowed with ESMO Lifetime Achievement Award

腫瘤學系系主任兼李樹芬醫學基金腫瘤學教授莫樹錦教授(左二)的研究改寫全球肺癌治療的準則,獲歐洲腫瘤學會頒發「終身成就獎」。學會形容莫教授是「腫瘤學的傳奇」,是全球首位將「個人化治療」應用在晚期肺癌患者身上的學者。他多年來致力研究肺癌的生物標記及分子標靶治療,其研究成果扭轉了肺癌治療的方向,訂定肺癌治療的新準則。

Prof. Tony Mok (2nd left), Chairman of the Department of Clinical Oncology and Li Shu Fan Medical Foundation Professor of Clinical Oncology, received the award for his contribution to and leadership in lung cancer research worldwide. Considered as 'a legend in medical oncology' and 'the first one to put personalized medicine in advanced lung cancer', Professor Mok's main research interest focuses on biomarker and molecular targeted therapy in lung cancer. Much of his research has shifted the treatment paradigm and defined the current management of lung cancer.



Source: ESMO

糖尿病專家獲海外榮譽院士名銜 Diabetes Expert Receives Honorary Fellowship Overseas



中大臨床科學家陳重娥教授專門研究糖尿病及其在華人患者的合併症,研究成果享譽國際,獲澳洲蒙納士大學頒發榮譽院士名銜。陳教授是內分泌科醫生兼臨床科學家,早前成立了亞洲糖尿病基金會並擔任行政總裁,也在專注於糖尿病基因檢測及疾病管理的基琳健康擔任董事及主席。

Prof. Juliana Chan, CUHK's clinician scientist renowned in the field of diabetes and its co-morbidities in Chinese population, has received an Honorary Fellowship from Monash University. As an endocrinologist and clinician scientist, Professor Chan founded the Asia Diabetes Foundation as the CEO and is the Director-cum-Chairman of GemVCare, a biotech company specialized in genetic evaluation and management of diabetes.

衝線人生 Pedal to the Metal

學生事務處舉辦首場「名人講堂」,由單車手黃蘊瑤小姐(中)擔任主講嘉賓,分享她在世界盃勇奪冠軍的勵志故事,逾六十位中大師生出席活動。黃蘊瑤勉勵年青人應逆境自強,並要發掘個人興趣及奮力追尋夢想。



In the first session of Celebrity Talk organized by the Office of Students Affairs, Ms. Jamie Wong (centre) shared her life story as the first Asian female cyclist clinching the gold medal in the World Cup series. Over 60 students and staff attended the talk. She encouraged young people to stay positive when facing challenges, cultivate their hobbies and try their best in pursuing dreams.

研究資助局表揚兩位 中大學者 Two CUHK Scholars Recognized by RGC

研究資助局對音樂系喬曼教授和語言學及現代語言系黃俊文教授的研究成就予以肯定,喬曼教授獲頒「傑出青年學者獎」,何鴻燊認知神經科學講座教授兼中大大腦與認知研究所所長黃教授則獲頒「人文學及社會科學傑出學者獎」。



喬曼教授
Prof. Adam Kielman



黃俊文教授
Prof. Patrick Wong

Prof. Adam Kielman of the Department of Music and Prof. Patrick Wong of the Department of Linguistics and Modern Languages have received Research Grants Council awards in recognition of their excellent research achievements. Professor Kielman was given the Early Career Award and Professor Wong, Stanley Ho Professor of Cognitive Neuroscience and Director of CUHK's Brain and Mind Institute, received the Humanities and Social Sciences Prestigious Fellowship.

銀屑病關節炎患者的新希望 New Hope for Psoriatic Arthritis Patients



銀屑病關節炎患者罹患心血管疾病的風險較一般人高四成。中大醫學院發表一項研究,指患者的炎症綜合指數如能持續達標,即其發炎指數一直維持在最低水平,他們罹患心血管疾病的風險會因而降低,研究結果已發表於醫學期刊 *Arthritis & Rheumatology*。

The risk of cardiovascular diseases in psoriatic arthritis patients is 40% higher than that of healthy individuals. A recent study by the Faculty of Medicine shows that such risk can be lowered by achieving sustained minimal disease activity, which is the world's first study in the area. The study results have been published in the medical journal *Arthritis & Rheumatology*.

中大表揚過百傑出學生 Over a Hundred All-rounders Recognized

中大設立「傑出學生獎」以表揚及肯定學生的優異成就、社會貢獻,以及有勇於接受挑戰的精神。今年共有一百二十七名學生獲獎,他們在創新及發明、體育、藝術、社會服務及特殊成就五個類別表現出色。大學希望這些傑出學生能樹立榜樣,勉勵更多同學在面對挑戰時保持樂觀心境,帶着正能量迎難而上。



The University established the Outstanding Students Awards to recognize students' outstanding achievements, contributions to the community, and the courage to face challenges. This year, 127 students have been awarded in five areas, namely Innovation and Invention, Sports, Arts, Social Service, and Special Achievement. Awardees shall lead by example having a flourish life, and encourage their schoolmates to be optimistic when facing big challenges ahead.

腸胃科專家獲中國科學界 權威獎項 Gastroenterologist Receives Major Award in the Chinese Community



何梁何利基金向中大內科及藥物治療學系于君教授頒發「2018年度科學與技術進步獎(醫學藥學獎)」,表揚其消化道和肝臟病變的研究碩果累累,讓醫學界了解相關疾病的機制、診斷、治療及預防。于教授對獲獎深感榮幸:「在科研的路上,我們會繼續精進創新,悉力作更多高質素的研究,並將成果轉化作臨床應用,以提升醫療質素,讓病人能得到更佳治療。」

The Ho Leung Ho Lee Foundation presented to Prof. Yu Jun of CUHK's Department of Medicine & Therapeutics the '2018 Scientific and Technological Progress Prize (Medicine)' for her groundbreaking gastrointestinal research in understanding the pathogenesis, diagnosis, treatment and prevention of lesions in digestive system and liver. Professor Yu was honoured to receive the prize and said, 'We will continue to seek scientific advancement and to conduct more researches of high quality in order to transform research results into clinical applications and, most importantly, to improve medical standards and provide patients with better treatment.'



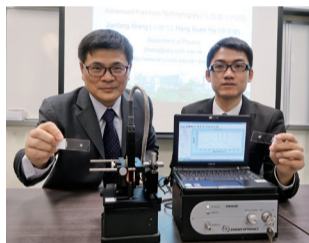
中大實習生的環宇視野 An Extra Mile of CUHK Interns



本年約有六百五十名學生參與「寰宇暑期實習計劃」，分別於全球四十四個國家實習，涉獵行業廣及銀行金融、審計與會計、P2P電子商務、法律服務、房地產、廣告傳媒、物流、零售、社會服務及一些駐內地城市的香港經濟貿易辦事處等。汲取工作經驗之餘，亦提升了語言及人際相處技巧，擴闊了世界視野。

This summer, around 650 students were placed in 44 countries under the Global Internship Programme. Interns looked into various industries including banking & finance, auditing & accounting, P2P e-commerce, legal services, advertising & journalism, real estate, logistics, retail, social service and Hong Kong Economic and Trade Offices in some Mainland cities. They have improved their language and interpersonal skills, gained workplace exposure and widened their horizons through the programme.

有害物質無所遁形 Harmful Substances Uncovered



傳統的食品檢測方法有一定局限，理學院助理院長（教育）、物理系王建方教授（左）開發了一種低成本、高精度、用於拉曼光譜儀的納米芯片，能更有效、更準確地檢測食品中的有害物質。

Traditional food testing methods have limitations in detecting harmful substances. Prof. Wang Jianfang (left), Assistant Dean (Education) of the Faculty of Science and professor of the Department of Physics, has developed a low-cost, high-precision nano chip for Raman spectroscopy which enables more effective and accurate detection of harmful substances in food.

首位「聯合書院傑出青年學者」 First Recipient of United College Early Career Research Excellence Award



聯合書院在10月19日慶祝第六十二周年院慶，同時頒發新設的「聯合書院傑出青年學者獎」，獲獎人為機械與自動化工程學系盧怡君教授（左二）。獎項旨在鼓勵書院成員追求研究卓越，並嘉許研究成果傑出的年青學者。

United College celebrated its 62nd anniversary on 19 October. The newly established United College Early Career Research Excellence Award was presented to Prof. Lu Yichun (2nd left) of the Department of Mechanical and Automation Engineering. The award was founded to promote research excellence and recognize outstanding College members for their independent research careers.

前瞻素食生活 Vegan Living for the Future



和聲書院推出名為「Future of Food: Plant-based Living」的通識課程。課程理論與實踐並重，除了一般授課，還加入烹飪和外展課，豐富學生的學習體驗，讓他們認識飲食習慣與環保、健康及動物的關係。

Lee Woo Sing College students are introduced a new General Education course 'Future of Food: Plant-based Living'. Besides lecturing, cooking elements and field trips are included to spice up students' learning experience. Students will look into the correlations between diet and the environment, food and health, as well as humans and animals.

Information in this section
can only be accessed with
CWEM password.

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密碼。

宣布事項 / ANNOUNCEMENTS



第八十六屆大會典禮特別安排

Arrangement for the Eighty-sixth Congregation

第八十六屆大會（頒授學位典禮）將於11月29日（星期四）上午十時正在邵逸夫堂舉行，屆時將頒授榮譽博士及博士學位。

The Eighty-sixth Congregation for the Conferment of Degrees will be held at 10:00 am on Thursday, 29 November 2018 at the Sir Run Run Shaw Hall. At the Congregation, the honorary and doctoral degrees will be conferred.

上課安排

Class Arrangement

典禮當日照常上課。

Classes will be held as scheduled.

泊車安排

Parking

11月29日典禮當日，邵逸夫堂對面之停車場、新亞路及中央道車位，皆保留予附專用泊車證之嘉賓及公務車輛使用。

Parking spaces opposite to the Sir Run Shaw Hall, on New Asia Road and Central Avenue will be reserved for guests and official vehicles with special parking labels on 29 November.

年度非教職人員審議事宜

Annual Non-teaching Staff Review

大學已函請各學系及部門主管，就2019年度職員審議有關（甲）、（乙）及（丙）類服務條例及相類服務條款非教職人員之退休、延任、擢升、職級調升及由定期合約轉為長期聘用事宜考慮提薦。相關提名或意見須於2019年1月11日或以前，經部門送交人力資源處轉呈有關委員會考慮。相關職員審議的通告及資訊已上載至人力資源處網頁 (<https://www.hro.cuhk.edu.hk>: 員工資訊 > 評核 > 非教職人員) 以供參考。

The University has invited heads of departments and units to make recommendations for the retirement, extension of service, promotion, re-grading and conversion from fixed-term contract to continuous appointment of non-teaching staff members on Terms of Service (A)/(B)/(C) or equivalent for the 2019 staff review exercise. Recommendations from the departments/units should be submitted to the Human Resources Office on or before 11 January 2019, for onward further referral to the relevant University Committee(s) for consideration. The relevant circulars and information on the annual staff review exercise are now available at the homepage of the Human Resources Office (<https://www.hro.cuhk.edu.hk>: Staff Area > Staff Review > Non-teaching Staff).

中大校友日

CUHK Alumni Homecoming

日期 Date	24.11.2018
時間 Time	11:30 am–5:00 pm
地點 Venue	中大校園 CUHK Campus
入場登記 Admission	www.alumni.cuhk.edu.hk/homecoming (截止報名 Registration deadline: 19.11.2018)
查詢 Enquiries	校友事務處 Alumni Affairs Office 電話 Tel: 3943 8670/7861 電郵 Email: homecoming@cuhk.edu.hk

平安夜、新年除夕及農曆新年除夕之辦公安排

Staffing Arrangements on University Holidays on Christmas Eve, New Year Eve and Lunar New Year Eve

根據大學關於平安夜、新年除夕及農曆新年除夕大學假日辦公之安排，所有部門於2018年12月24日、31日，以及2019年2月4日上午須留有職員值班。當值之（乙）或（丙）類服務條例職員可獲補假半天。

保健處、大學圖書館、資訊科技服務處之電算機操作組、保安處、交通處、物業管理處等部門須留駐足夠人手，以維持基本服務。

The following staffing arrangements for the University holidays on Christmas Eve, New Year Eve and Lunar New Year Eve will apply on 24 and 31 December 2018, and 4 February 2019 respectively. Departments/units should arrange for skeleton staff to be on duty on these mornings to handle urgent matters and enquiries. Offices will be closed in the afternoon. Skeleton staff (Terms [B] or [C]) on duty on these mornings will be given compensation off of half a day.

For essential service units such as the University Health Service, the University Library, the operations team of the Information Technology Services Centre, the Security Office, the Transport Office, and the Estates Management Office, adequate workforce should remain on duty to provide basic services.

延長有薪產假及優化多項家庭友善措施

Extended Paid Maternity Leave and Enhanced Family-Friendly Policies

中大推出多項優化員工福利的措施，以進一步完善大學現時的家庭友善政策，由2019年1月1日起生效。主要內容如下：

The University will enhance various arrangements for staff benefits to further strengthen its family-friendly policies with effect from 1 January 2019. Key changes are summarized below:

措施 Policies	優化安排 Enhanced Provision
有薪產假 Maternity leave	<ul style="list-style-type: none"> 服務滿40星期的女性員工之全薪產假，由現時10星期延長至14星期* 服務滿20星期但少於40星期的女性員工，可享新增設的10星期全薪產假 Full-pay maternity leave for female staff who have completed 40 weeks' service is extended from 10 weeks to 14 weeks* Full-pay maternity leave of 10 weeks is newly introduced for female staff who have completed 20 weeks but less than 40 weeks' service
侍產假期 Paternity Leave	<ul style="list-style-type: none"> 服務滿40星期的男性員工之全薪侍產假期，由現時5個工作天延長至7個工作天 服務滿20星期但少於40星期的男性員工，可享新增設的5個工作天全薪侍產假期 Full-pay paternity leave for male staff who have completed 40 weeks' service is extended from 5 working days to 7 working days Full-pay paternity leave of 5 working days is newly introduced for male staff who have completed 20 weeks but less than 40 weeks' service
領養假期 Adoption Leave	<ul style="list-style-type: none"> 服務滿40星期的員工之全薪領養假期，由現時3個工作天延長至5個工作天 Full-pay adoption leave for staff who have completed 40 weeks' service is extended from 3 working days to 5 working days
喪親假期 Bereavement Leave	<ul style="list-style-type: none"> 員工喪親（即配偶、父母、子女、兄弟、姊妹及配偶之父母），可獲2個工作天喪親假期 將擴展至包括員工之祖父母及配偶的祖父母 若要離港處理喪親事宜，可額外獲批最多3個工作天的假期 Full-pay bereavement leave of 2 working days for staff if they have lost a close relative (i.e., spouse, parent, child, brother, sister or parent-in-law) Extended to cover the loss of staff's grandparents and grandparents-in-law Leave of 3 additional working days if staff have to attend occasions outside Hong Kong
申請延遲實任評核年期 Deferral of review for substantiation	<ul style="list-style-type: none"> 須於6年限期內完成實任評核的女性教員，可以懷孕為理由申請延遲評核，最長可延期1年 男性教員亦可以子女出生為理由提出相同的申請 有關安排亦適用於領養新生嬰兒及學前兒童 Female teaching appointees close to the substantiation review can request an extension of the 6-year time limit for up to 1 year on grounds of maternity Extended to male teaching appointees on grounds of paternity Extended to the adoption of a new born baby or pre-school child

* 作為關懷員工的僱主，中大亦會向預產期或實際分娩日期在2018年10月10日至12月31日期間的女性員工，提供14星期的全薪產假。
As a caring employer, CUHK will also allow female appointees whose expected or actual date of confinement falls within the period from 10 October 2018 to 31 December 2018 to enjoy 14 weeks' full-pay maternity leave.

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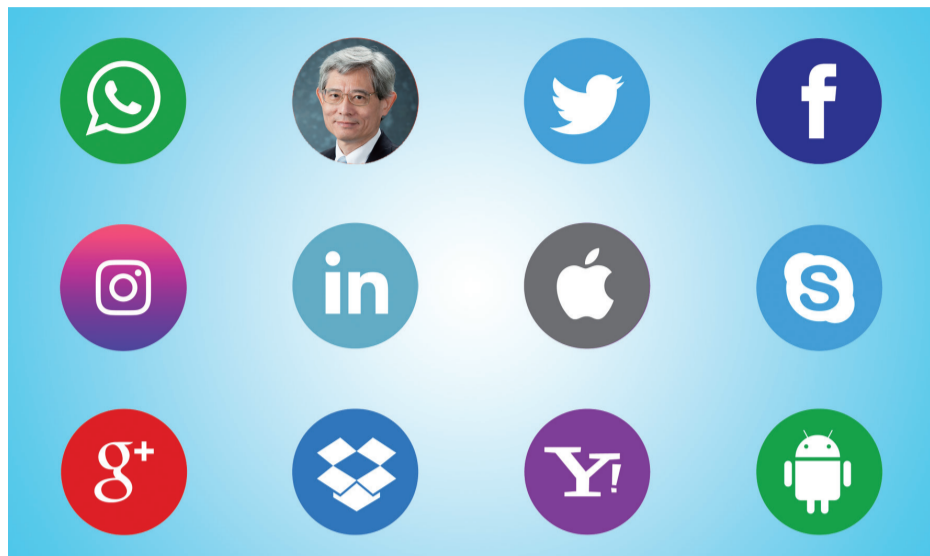


<https://www.hro.cuhk.edu.hk/en-gb/staff-area/personnel-circulars/announces>



科技的前路

An Engineer's Peep into the Unknown



善衡書院院長、卓敏信息工程學研究教授黃永成教授，視工程學為一門人類如何把資源最理想地化為己用的科學，而科技則是達致這個化為己用的手段或工具。

以上定義中的資源也包括信息。自古以來，人類頗懂得利用信息來達到不同目的。中國的萬里長城，部分建成於公元前七世紀，堅厚的城牆除了可以抵禦外敵外，城樓其實也可用來以煙火傳遞軍事信息。

工業社會不斷編織及改良連接人與人的羅網。電話之後出現電視，近年的萬維網則基本上是一個電腦，甚至是手機或平板電腦的網絡。

黃教授對科技的未來，或是科技扮演重要角色的未來世界，基本上抱持樂觀態度。但他也非常關注科技發展若缺少社會、道德、法律方面的監管，會對一般市民的日常生活造成不良影響。網絡欺凌和侵犯私隱便是網絡世界缺乏有效制衡因而失控的例子。

不加約制的科技發展可能會取代人類的判斷及社會責任。舉例說，人工智能及機器學習的進步一日千里，無人汽車最終有日會取代人類駕駛者，但交通意外相信不會絕跡，要解決因之而起的賠償責任問題，需要從道德、法律以至經濟多角度思考。沒有全盤及負責任的指引，可能出現科技反客為主的危機。

黃教授認為大學教育的意義，在於教導學生如何面對這些不斷衍生的複雜問題，從而制訂一套管控科技巨輪的機制。如何最理想地化資源為己用，畢竟也視乎人類的智慧。

According to Prof. **Wong Wing-shing**, Master of S.H. Ho College and Choh-ming Li Research Professor of Information Engineering, engineering is the optimal conversion of resources for human use. Technology is the means or the tool to achieve that optimal conversion.

In the above definition, resources include information which is as vital and tangible as water and air. Since antiquity, human beings have been very adept at organizing information for different purposes. The Great Wall of China, parts of which were built as early as the seventh century BC, served as a network of signalling towers in addition to a defence bulwark at a time when military information travelled by means of, among other things, smoke.

Industrial societies continuously spawn and refine means of connecting people with increasingly sophisticated networks of information. After the telephone there came the television, and in recent decades the worldwide web is essentially a network of computers, or mobile devices in recent years.

Professor Wong is generally sanguine about the future of technology or the world in which technology plays an increasingly larger role. But he is also concerned that technological changes might bring about unanticipated consequences which, without the appropriate social, ethical and legal safeguards, may adversely impact on the daily lives of ordinary citizens. Cyberbullying and threats to privacy are examples of a rampant but unregulated connectedness in the cyber world.

Untamed technological development may threaten to replace human judgments and societal responsibilities. For example, advances in AI and machine learning are being made in big strides every day and driverless cars may one day replace human drivers. Yet it is unlikely that accidents will disappear and resolving the liability issues arising therefrom requires careful considerations from all ethical, legal, and economic angles. In the absence of collective, conscientious steering, there is a real danger that technology will become the master instead of serving as a tool.

Professor Wong sees it as a responsibility of universities to prepare their students for these evolving and complex issues so that they can engage effectively in the harnessing of the increasingly powerful tool of Technology. Optimal conversion, after all, is a measure of human intelligence.

T.C.



啡香氤氳

The Crema Revolution



北角有一家精品咖啡店Brew Note，店主洪嘉偉除了重視咖啡質素，也精心形塑咖啡店的格調，去年曾與中大政治與行政學系周保松教授在店內舉辦文化沙龍。店主於8月在龐萬倫學生中心開設分店Paper&Coffee，聞說午飯時間時常滿座，我決定在下午茶時段走一趟。

甫走進Paper&Coffee，簡約精緻的室內設計即映入眼簾。在長吧枱的一端，有一座虹吸式咖啡壺，顧客可以安坐高櫈，欣賞咖啡師的沖煮技藝；最特別的是榻榻米平台，這在本地咖啡店十分罕見，顧客脫鞋後，盤腿坐墊上，可一邊飲咖啡，一邊欣賞旁邊落地玻璃上的手寫詩。

顧盼四周，不難發現店主刻意塑造交流空間，無論是榻榻米或是卡座，都是四人座位，同學可以討論課業，或隨意坐在一角品味咖啡。店主曾言，品味是在年輕時培養的，這讓我想起當年負笈多倫多大學深造的經歷。有天下着雪，我哆嗦着走到校內咖啡店點了人生第一杯熱mocha，自此習慣在啡香氤氳和音樂悠揚的空間整頓思緒。

我今次依舊點了一杯熱mocha，第一口便發現咖啡的基底很特別，看一看餐單上的介紹，原來他們以帶明亮果酸和榛子風味的espresso作基底，再注入跟朱古力粉一起打熱的牛奶。口中綿綿的朱古力奶味，與回甘的榛果味配合得恰好。再喝一口，咖啡表面的花樣圖案依然保持原狀，看來咖啡師的拉花手藝不錯。

看着同伴細味虹吸式咖啡，我在想，中大人是幸福的。同學能夠在追趕學習進度時，走進這空間歇歇腳，嗅嗅淺炒咖啡豆的香味，看看咖啡師專注沖煮咖啡，與同伴聊聊天，或者乾脆拿起咖啡杯，離開店舖往窗外看看未圓湖。如此的人文景緻，唯中大獨有。

Brew Note Coffee Roaster is a specialty café in North Point. The owner **Vincent Hung** values coffee quality and strives to shape its brand identity. Last year, he co-organized a cultural salon with Prof. **Chow Po-chung** of CUHK's Department of Government and Public Administration. This August, he opened a new branch Paper&Coffee at the Pommerenke Student Centre. As it could get quite crowded at lunch time, I decided to pay a visit at tea time.

Entering Paper&Coffee, I first noticed the simplistic and elegant interior design. There was a syphon coffee maker at the end of the bar counter. Clients could sit back appreciating the aproned barista's brewing technique. I was attracted to the *tatami* platform which is rare in local cafés. Having removed their shoes, the clients sat cross-legged on the mats enjoying coffee and reading a poem handwritten on the glass wall nearby.

I discovered the thoughtfulness of the owner in providing a space for dialogue. Both booth and *tatami* seating accommodate four people. Students can discuss classwork with their mates or sit alone at the corner. The owner once said, 'Fine taste should be cultivated young.' It aroused my memory of studying at the University of Toronto. It was snowing. I shivered in the piercing cold and entered a campus café to order my very first cup of mocha. Since then I have been used to combing my thoughts in a café filled with brewing aroma and melodious music.

I ordered a cup of hot mocha as usual. Amazed by the coffee base after my first sip, I immediately read the introduction on the menu and learnt that they brew the espresso with notes of citrus acidity and hazelnut flavour, before processing cocoa powder with steamed milk. The creamy rich cocoa worked perfectly well with the hazelnut scent. I took another sip. The floral cream on the surface still remained intact, no doubt due to the latte art of the barista.

Looking at my companion enjoying his cup of syphoned coffee, I felt the bliss as part of the CUHK community. The specialty café can be a comfort zone for the restless souls catching up with their learning progress, where they can enjoy the scent of light-roast coffee beans, appreciate the brewing of the barista and chit-chat with their mates. Or they can simply leave the café with a cup of coffee and look at Lake *Ad Excellentiam* leaning at the window. Such a humanistic landscape is the privilege of our community.

J. Lau

Photo by ISO Staff

口談實錄 / VIVA VOCE

梁啟軒 Mike Leung

文物館書畫修復學員
Junior Conservator, Art Museum

大學畢業後，調過咖啡，二十四歲的梁啟軒選擇走上一條少人踏足的路，至今三年，在謝光寒師傅循循善誘下，立定了事業志向。

History graduate Mike Leung had worked as a barista. At the age of 24, he chose a road less trodden. After three years under the tutelage of Master Xie Guanghan, he is affirmed of what he wants to become.



怎樣開始接觸裱畫？

我唸歷史，公認是沒有明確事業路向的科目。得悉中大招聘裱畫學徒，好奇下上網搜尋，知道這行業極缺新血，文物館則新聘了一位書畫修復大師。心想競爭相對小，發展也許比較穩妥吧。

幾年下來感覺如何？

文物館沒有商業考慮，學徒只我一人，可以學得比較全面，不像裝裱店的學徒，有些單做畫裱，有些單做上漿。師傅說，以前的學徒，未滿三年，休想碰一幅真畫。我非常幸運，一年多便開始處理真畫。

三年便能把手藝學全了嗎？

三年只是學習裝裱新畫的基本技術，包括掛軸、對聯，至於修復技術就是終身鑽研也不可能學全的。

裱畫工序繁複，如何銘記？

最初我嘗試做筆記，但師傅說不急。「畫要真濕了水，難道還要翻筆記才知道怎樣處理嗎？墨早已化開了。」他要求熟記所有工序，了然於胸，審視作品，計劃清楚每一個步驟才着手。師傅的手勢清晰利落，仔細觀察，必有所得。例如塗漿糊用中指，因為最順手，力度最適中。明白了，便不用死記。

哪個工序最難？

由畫芯到畫軸約有三十個工序，最難是托底，既講技巧也講經驗。漿糊掃得不均勻，會出現氣泡。還要憑經驗辨識畫上的顏料，才決定如何施工。因為涉及水分，容易導致脫色或暈化。

裱畫需要心靜閒定，你的性格可適合？

醫生穿上手術袍進入手術室，必然會高度專注。脫下袍子，他可以談笑風生。裱畫也一樣，只要我一走近工作桌，便會興起尊重之意，心無旁騖，平日是個怎樣的性格，沒有影響。

會影響處事方式嗎？

我學曉心平氣和，從不同途徑解難，或者交予時間，因為經驗告訴我急躁行不通。例如托底時，水噴得不均勻，紙張纖維的伸展便會不一致，出現皺紋。但如果噴水後給予時間讓纖維慢慢平均伸展，問題便迎刃而解。

與謝師傅的關係如何？

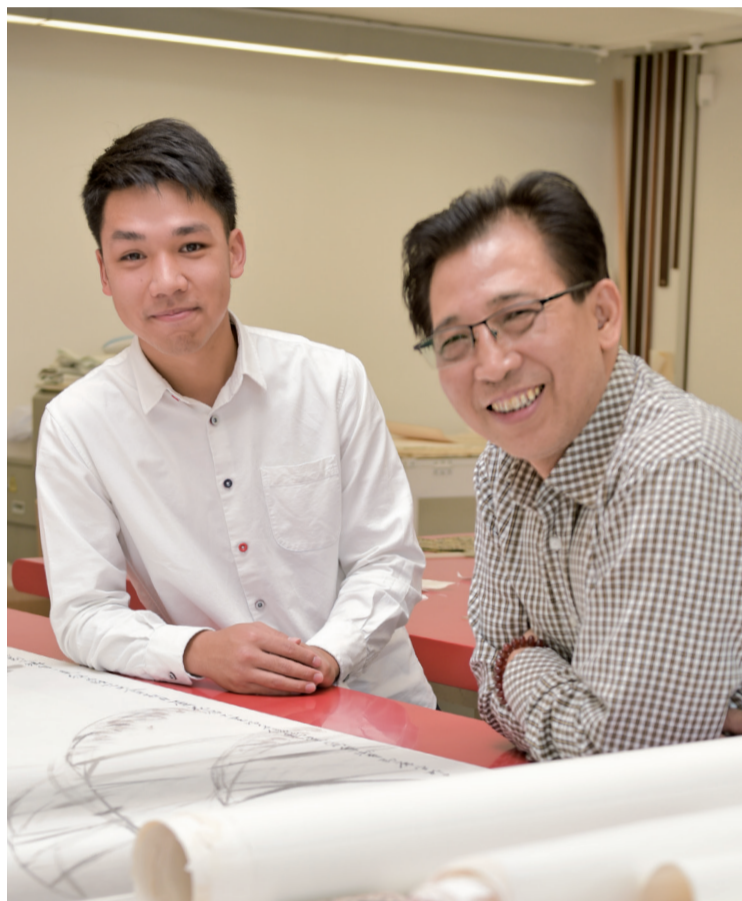
師傅覺得是亦師亦友，我倒覺得他像個父親多一點。他不像老派師傅見到學徒做不好便罵，「將心比心，我當學徒時也不是一學就懂的。」除了無保留的傳授知識，他也着重教我做人處事。他常說，沒有人會願意把自己心愛的名作交給一位品格欠佳的裱畫師的。

何時開始覺得可以發展下去？

打從第一天上班開始，我便告訴自己要有以此為長遠職業的心態。學習途上，疏忽細節，掌握不好技術，總不免有失敗感，可我沒想過放棄。在文物館學習機會良多，又有師傅的指導和支持，我有信心逐步改善。

想到外面看看嗎？

裱畫流派眾多，南北蘇京，各有千秋。師傅是蘇裱傳人，也曾四出觀摩，採納別派技法，精益求精。我固然希望到外見識，但先須鍛煉好手藝，充實對裱畫的認識，否則看不出優劣，如何借鏡，又談甚麼心得？



謝光寒師傅（右） Master Xie Guanghan (right)

How did you come to know about mounting of Chinese paintings and calligraphy?

Learning that CUHK was recruiting an apprentice, I googled and found that the Art Museum had newly recruited a great master in conservation, and that the profession was in dire need of new blood. It might imply less competition and a steadier career path.

How did it turn out?

Being the only apprentice at the Art Museum, I have been exposed to a comprehensive array of skills. If I worked in a business setting with meticulous division of labour, probably I'd learn much slower. Master Xie told me in the old days a junior can work on a real painting only after apprenticing for at least three years. I'm very lucky here. It took me only a year or so.

Does it take only three years to learn the full set of skills?

One can learn the fundamentals of mounting new hanging scrolls and couplets. As for the skills of conservation, it will take more than a whole life.

How can you remember all the complicated procedures?

At first I tried to jot down notes but Master Xie said, 'Wait! Are you going to flip through the notes when you need to save a wetted painting? It will be too late to stop the ink from blurring.' He asked me to learn every step well by heart, and plan all the procedures before laying my hand on an item. I benefit a lot by observing in detail his clean and sharp movements. If you understand the reason behind you will

remember it effortlessly, like using the middle finger to spread the adhesive paste because it moves most smoothly and exerts just the right amount of weight.

Which step is the most tricky?

It takes about 30 steps to mount a raw painting onto a scroll. Preparing the back paper requires both skills and experience. To avoid creating air bubbles the adhesive must be spread evenly. As water is involved, we also need to identify the pigments on the painting to prevent discolouration or blurring.

Your job needs to be done with a peaceful mind. Are you fit for it?

A surgeon will shut himself off from distractions once he puts on his gown and enters the operating theatre. After work, he can be playful and light-hearted. Similarly, I will pay my highest respect and sole attention to the artwork once I am at the worktable.

Does it change the way you deal with other matters?

Yes, I learn to stay calm and be resourceful, or simply leave it to time. I know from experience that I can't rush anything up. Water sprayed unevenly on the backing sheet will lead to

uneven expansion of the paper tissues, causing creases on its surface. Give it some time, the tissues will gradually extend evenly and the problem will be solved.

How is your relationship with Master Xie?

Master Xie says he's my teacher and friend. I feel he's more like a father. He never gave me harsh words on my mistakes as an old-school master would, but put himself into my shoes. 'I didn't learn everything with the snap of a finger either when I was an apprentice.' He imparts his knowledge and skills to me without reservation, and shows great concern for my conduct. As he always says, nobody will entrust his valuable artwork to somebody of bad morals.

When did you start thinking that this could be your long-term career?

I treated my job like a permanent one since the first day I was here. There have been moments of defeat when I failed to follow the steps or master the skills. But I will not give up. I'm confident that with the ample learning opportunities at the Art Museum, and the coaching and support from Master Xie, I will keep improving and become a qualified mounting master.

Do you want to see the world outside?

Of course I do. There are different schools of mounting and framing, each unique in its own way. Master Xie inherits the Suchow school. He has also travelled extensively to incorporate the best practice of other schools. In order to do that, I need to hone my skills and deepen my knowledge of this art. Otherwise, I won't be able to tell the good from the bad, or to learn from others' experience, not to mention to gain any insight. 📷

S. Lo