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Many good things have been said about engineers. “Engineers don’t lie” and “Engineers build human civilizations”. To these must be added a third, at least in the case of Prof Harry Shum ‘Engineers are innovators’. Prof Shum is in charge of the team for Bing product development at Microsoft. When asked to describe his search team’s biggest edge, he emphatically said, “Our willingness to innovate.”

When Prof Shum came to HKUST to give a lecture as a distinguished speaker for our Institute for Advanced Study earlier this year, he was clearly in his element, funny, informative and engagingly innovative. He is highly analytical and yet blessed with the ability to see the big picture and reduce complex problems to their barest essentials. By his telling, he was at one point confronted with a painful choice of either joining HKUST or working for Microsoft. In the end, he became a Microsoft man, but his academic yearnings have never been extinguished.

More than a decade later, he no longer has to agonize over a difficult choice, for he has been appointed Adjunct Professor in our Department of Computer Science and Engineering, thus straddling business and academia. When he comes to our campus, we prefer to call him Professor Shum rather than Dr Shum. These days when people think of computer science in Asia, they think of HKUST. Prof Shum’s joining our Computer Science and Engineering Department has added not only cachet to our name in this field, he is also an inspirational benefit to our staff and students in product incubation, technology transfer, perhaps even to our internship program.

Prof Shum received his doctorate in robotics from the School of Computer Science at Carnegie Mellon University. Post-PhD, he has been a faithful Microsoft man, joining Microsoft Research in Redmond, Washington in 1996. And then in 1998, he moved to Microsoft Research China in Beijing, which was later renamed Microsoft Research Asia. According to *MIT Technology Review*, Microsoft Research Asia is ‘the world’s hottest computer lab’. In 2004, he became its Managing Director. Two years later, he was promoted to Distinguished Engineer of Microsoft Corporation. By 2007, he became Corporate Vice President and was placed in charge of search product development, shepherding its most recent revolutionary project: Bing.

In the Bing project, he and his team embarked on a quest to bring about a paradigm shift in search engines. Internet search itself hasn’t fundamentally changed in the last 12 years. There is nothing derivative in what he and his team have done to turn the search concept on its head. Prof Shum is bent on reaching that final frontier in search engines. With the launch of Bing, Microsoft is gaining ground on its competition, making steady inroads on its market share. In

對工程師的溢美之詞可說俯拾皆是，例如「工程師從不撒謊」和「工程師是人類文明的締造者」，但對沈向洋教授來說，我們肯定最少要再加多一個說法，那就是「工程師是創新者」。作為微軟Bing「必應」產品研發團隊的負責人，沈教授認定團隊的最大優勢就是「我們對創新的決心。」

年初，沈教授應邀擔任香港科技大學高等研究院傑出學人講座主講嘉賓，他表現一派自若、風趣幽默，其創新思維令人擊節讚賞。他分析力強，並能綜觀全局，將複雜問題抽絲剝繭，化繁為簡。他表示自己曾一度面對到底是加入科大還是在微軟工作的困難抉擇。最後，他加入了微軟工作，但對學術的熱忱卻從未減退。

十多年後，沈教授毋須再在兩難中掙扎取捨，因為他已獲科大委任為計算機科學及工程學系兼任教授，跨越商界和學術界。當他回到科大校園，我們通常尊稱他為沈教授，而非沈博士。今天，一談到亞洲的計算機科學，大家不期然便會想到科大。沈教授加入科大計算機科學及工程學系，不但使科大在學術界的聲望更上層樓，更在產品企劃、技術轉移，甚至學生實習計劃等方面為科大師生帶來了重要的啟發。

沈教授在卡內基梅隆大學計算機科學院取得機械人學博士學位，畢業後一直在微軟專心工作，最先於1996年加入了華盛頓州雷德蒙德的微軟研究部，後於1998年派駐北京的微軟中國研究部（其後易名為微軟亞洲研究院）。根據《麻省理工學院技術評論》，微軟亞洲研究院是「全球最矚目的計算機實驗室」。2004年，他成為該研究院的院長，兩年後晉升為微軟公司傑出工程師。到了2007年，他成為微軟公司的企業副總裁，負責管理搜尋產品研發工作，領導最近的革命性項目Bing。

開發Bing期間，他和團隊努力鑽研，希望為搜尋引擎開創全新的發展模式。互聯網搜尋器在過去12年並無本質上的變化，沈教授和團隊則希望打破常規，徹底扭轉搜尋概念，把搜尋引擎帶到終極領域。隨著Bing的推出，微軟在市場上逐漸取得有利位置，穩步擴大在搜尋器市場的佔有率。沈教授希望Bing能掌握用戶的思路，從而提供他們需要的資訊。他形容現時的搜尋引擎是一種「碰運氣」模式，而他和團隊研發的Bing對話模式，並非只回應用戶的查詢，而是更能掌握用戶的思路。藉著這種對話模式，研究團隊全力研究搜尋概念和意義，

Bing, what he sought to do is to deliver knowledge by understanding intent. He characterizes existing search engines as a hit or miss model, whereas he and his team have come up with the Bing dialogue model which understands user intent, not just user query. Through this model, they go after concepts and meaning, rather than keywords. That is why he is calling his new construct a decision engine, not just another search engine. In other words, it is a tool to help users make everyday decisions that affect or form a part of their lives. Since leaving school, Prof Shum has always been associated with success throughout his career. There is no reason to doubt that he will once again prevail with Bing. He is going where no one has gone before. He is aiming at nothing less than getting his hands on the holy grail of search.

An expert in computer graphics and computer vision, Prof Shum is as prolific a writer as he is an innovative product designer. To date, he has presented or published more than 200 papers, either at international conferences or in journals. He is recognized as a pioneer and advocate of research on interactive computer vision, on which subject he has published many papers. At last count, he is the holder of more than 50 US patents. In and out of Microsoft, he is much praised for his leadership in technology and management. He is fond of saying that engineers, no matter how famous or world-famous, will never have the star power of TV celebrities. But here in Asia his star is in the ascendant, with him being the 2011 recipient of the Asian-American Executive of the Year Award. Look for his star to shine even brighter in the technological firmament.

Prof Shum was on the editorial boards for *IEEE Transactions on Pattern Analysis and Machine Intelligence* and the *International Journal of Computer Vision*. He co-chaired the Eleventh Conference on Computer Vision in Brazil in 2007. Named a fellow by the Institute of Electrical and Electronics Engineers in 2006, he was honored with a fellowship by the Association for Computing Machinery the following year for his many contributions to computer vision and computer graphics.

The Internet has revolutionized the way we communicate and search for information. It has an inestimable impact on consumer behavior and even the way we do research. Its reach and importance will only grow with the growing versatility and intelligence of search engines. Prof Shum is at the forefront of this relentless push for creative breakthroughs that will benefit search engine users in exploding markets all over the world. A true innovator who combines technical wizardry and creative flair, he is someone who exemplifies what Albert Einstein has said that "Imagination is more powerful than knowledge." The digital world is his oyster.

Mr Pro-Chancellor, on behalf of the Council of The Hong Kong University of Science and Technology, I have the high honor of presenting to you Prof Harry Shum Heung-Yeung, Corporate Vice President of Bing Development at Microsoft, for the award of Honorary Fellowship.

而不只是著眼於關鍵字。因此，他形容他們研發的搜尋器是一部決策機器，而非只是另一款搜尋引擎。換言之，這是一台能夠幫助用戶作出日常決策的工具，而這些決定足以影響他們的生活或成為他們生活的一部分。沈教授的事業一直處於高峰，他研發的Bing項目再創佳績。他正踏足前人未達之境，決心要在搜尋引擎研發創出巔峰之作。

沈教授是計算機圖像和視覺技術的專家，他同時也是一位多產作家和創意產品設計師。到目前為止，他在國際會議或透過期刊，一共發表及出版了超過200篇論文。他獲公認為互動計算機視覺研究的先驅和倡導者，就這個題目發表了多篇論文。另外，他在美國還擁有超過50項專利。不論是在微軟或其他地方，他在技術和管理方面的領導才能均備受讚賞。他常說，無論工程師如何有名，甚至是享譽全球，其魅力都總比不上電視明星。不過，沈教授榮獲2011年「全美亞裔年度傑出工程師獎」(Asian-American Engineer of the Year Award)後，在亞洲的人氣正不斷上升。我們祝願沈教授在科技領域的成就更能上層樓。

沈教授曾擔任《*IEEE Transactions on Pattern Analysis and Machine Intelligence*》和《*International Journal of Computer Vision*》的編輯委員，在2007年擔任巴西第11屆計算機視覺會議聯合主席。2006年，他獲頒電機及電子工程師學會院士，並於翌年獲美國計算機協會頒發院士榮銜，表揚他對計算機視像和圖像技術的重大貢獻。

互聯網徹底改變了人類溝通和搜尋資料的方式，對消費行為甚至研究方法產生難以估量的影響。隨著搜尋引擎的功能和智能不斷提升，互聯網的覆蓋能力和重要性只會不斷加強。沈教授站在技術最前線，努力追求創新和突破，在世界各地高速發展的市場上，造福搜尋引擎用戶。真正的創新者能夠結合技術和創意，體現愛因斯坦的名言：「想像的力量比知識更大」。數碼世界正是沈教授享受成功與快樂的天地。

副監督先生，本人謹代表香港科技大學校董會，恭請閣下頒授榮譽大學院士予微軟Bing發展部企業副總裁沈向洋教授。