



周松年博士
Dr. Songnian Zhou

學而優從商 周松年的傳奇

當周松年博士獲選為今年的「紅楓傳奇」人物時，有大陸移民告訴我：「像他這麼有成就的人，應該早幾年就入選了。」雖然是遲來的榮譽，總算主辦單位「華商網絡」提供了這個平台，評審團有眼光，讓更多的華人，尤其是中國大陸移民社區以外的港台同胞，有機會認識這一位捨多大終身教授職，開創高科技公司(Platform Computing Corporation)成功的學者企業家。

十多年來，坊間關於訪問周松年的報導相當不少，不單是中文的，還有英文「Globe and Mail」的專題報導。我在訪問周博士之前，花了些時間看過這些報導，無疑對他求學的努力和創業的艱辛十分佩服。天下沒有不勞而獲的，周松年雖然天賦很高，但是如果不是憑著那一股鍥而不捨的毅力，不服輸，不認命，不斷的嘗試，不可能有今天的成就。

文革後第一批大學生

1956年出生於一個資本家的家庭，在中共建政的初期，周松年全家的成份都「不好」，所以當1966年大陸爆發被視為十年浩劫的文革之時，他每個月領取6塊錢人民幣的生活費，生活艱苦自在話下。除了他因為是最小的幼子特准留在父母身邊以外，其餘五個兄姐下放的下放，插隊的插隊。也正因為如此，喜好看書的他，有機會把家裡存留和兄姐讀過的書都翻遍了，無形中因自學而得到不少知識。17歲那年，也就是文革最後的3年，他到北京內燃機工廠當工人。

文革結束的第二年，鄧小平復出，下令恢復停辦了10年的高考，他以自學的程度報考，結果考進了北京工業大學的自動控制

系，他成為文革後中國第一批大學生，這是他一生的轉捩點。由於文革動亂，許多人荒廢了求學的進程，在北工大校園內，學生的年齡差距甚大，最年長有30歲的，最年幼的只有18歲，因而更要把握機會努力學習。1980年，美國波士頓東北大學(Northeastern University, Boston, Massachusetts)校長帶團到訪北京工業大學，提供4個名額給北工大甄選的學生到美國留學，周松年當時是大二，把握這難得的機會應試，結果以最優異的成績獲選，與同行的另三名學生入讀波士頓東北大學三年級，他放棄原先在北工大攻讀的自動控制系，改讀電子計算機系，他克服了對英語的困難，兩年後在800名學生中以最優秀的成績畢業，由於他對電腦科技的鑽研和愛好，申請到加州柏克萊大學繼續攻讀碩士和博士學位，在柏克萊大學前後5年，學成後於1987年應聘到多倫多大學擔任教職，1992年，周松年獲聘為終身教授。

恩師相挺下 赴美留學

為人要飲水思源，周松年有今天的成就，他念念不忘當初批准他出國的北工大老校長。他說，出國前有人告訴他，由於他的出身成份不好，學校人事處反對讓他出國留學，但是北工大校長堅持要讓學習成績好的周松年出國，最後終於讓他過關，這也是為甚麼他時時刻刻提醒自己要努力以赴，不辜負老校長的期望。

由一名自費公派留學生成為一所著名大學的終身教授，對於某些人而言，這已是成功的寫照，但對於衝勁十足，混身充滿著「叛逆細胞」的周松年而言，他不甘心就如此安逸平穩過下去，他念念不忘自己在柏克萊大學的博士論文所提出有關分布式電腦管理系統的概念。

回顧第一代電子計算機於1946年問世，經過不斷改進，至20世紀70年代，電子計算機已進入第四代，由集成電路裝配而

成，體積縮小，使用方便，用途亦日漸廣泛，功能有如人腦，故稱之為電腦。使用的軟件由傳統的大型集中式，改變為分布式，個人電腦(PC)和服務機(Server)日漸普遍，但基本上仍然各自孤立，互不合作，這種系統的操作適用於小的項目，但是如要進行大項目的操作，就顯得勢孤力單，難以勝任。而周松年早在柏克萊讀研究所時，就已經想到這個問題，他的博士論文就是根據這個概念寫成的。在多大任教的那幾年，他一方面認真教學，一方面繼續研究，並尋找機會，他發現很多大企業都在為公司內數以千計的計算機的運作效率不佳、功能受到限制而苦惱。他決心要研究解決這方面的難題。當時的北方電訊公司對於周博士開發的「負載共享」軟件系統很感興趣，撥出數十萬元作為研究基金，周博士帶領一個研究團隊專注於這種管理計算機群軟件的研究和開發，設法把許多PC和Server的網絡統合在一起，使它們各盡所能，充分合作，完成更多的計算工作，可以節省大量的人力、物力和時間。

辭教授職 開創平台電腦

當研究有了確切的成果時，1992年8月，當時35歲的周松年申請停薪留職，與同是來自中國的77屆大學畢業生王敬文和武冰三人合夥，以20萬美元的資金，開辦了平台電腦公司(Platform Computing Corporation)，開始生產第一版的「工作管理系統軟件-Load Sharing Facility簡稱LSF軟件」，並取得大客戶例如北電、Pratt & Whitney等的信任，如今已經歷18年，經過不斷的改進和創新，目前有大約2,000個分布全球的客戶，還沒有一個使用過平台電腦公司軟件的客戶表示不滿意的。全球公認的著名電腦科技廠家和用家，如IBM、HITACHI、DELL、HP、NEC、SONY、AMD等，使用並銷售平台電腦公司生產的軟件。

目前平台電腦公司在全球各主要地點都有分公司，聘用了近500名精於電腦科技的專門人員，其中加拿大有200餘人，中國在北京中關村和西安僱用了100多人，公司每年銷售成長，利潤提高。例如中國的航天科技業界就普遍採用了LSF軟件，事實證明，效果良好。

開發軟件 受大企業歡迎

周松年以深入淺出的用辭，解說LSF軟件的概念，簡單的說，就是「網格-Grid」，Google公司新創的名稱「雲計算-Cloud Computing」指的就是這個概念。換言之，就是把整個互聯網整合成一台巨大的計算機，實現「各類資源全面共享」的目的。平台電腦公司成立迄今18年，研發出3種主要的產品：1992年最早開發的是LSF；2002年研發製成Symphony軟件，這是一種大規模分布計算軟件，稱為Parallel Computing；2009年再研發出ISF軟件，稱為「雲計算系統」。其實基本功能和目標都差不多，只是針對應用和運行環境不同。

雖然平台電腦公司不斷擴張成長，聘僱的人員也逐年增多，但是周松年並沒有將公司上市的打算。他說，平台電腦公司是加拿大除了上市公司以外最大的計算機軟件公司。他很滿意北美洲的學術和科研環境，正因為有這種鼓勵創新和支持失敗的環境，才能讓他不斷的嘗試，用智慧創造財富。他認為中國在這方面遠遠不夠，中國目前仍處於「考試文化」，所以中國學生很會考試，但缺乏對創造發明的培養。

回顧文革十年，周博士毫不猶豫地指為是一場浩劫，走過艱辛的這一段，他才真正體會到機會的珍貴，對於部份中國大陸官員貪污和浪費的現象，他認為是罪過，是人的價值和道德系統的喪失。想起文革最後那幾年，他在北京內燃機工廠做苦工，他用

Hard labor來形容自己當時的情況。雖然是走在科學的尖端，但周松年言談中，充滿對中國數千年來哲學、人文的嚮往。他提到在經濟發展的極端，是價值和社會倫理的破壞，但假以時日，相信悠久的中國文化還是會走向平衡的狀態。

周松年說，出生成長於中國，成家立業於北美，在兩個體制下的體驗，結合兩個社會的經歷，對他的生活、工作都有極大的幫助。

如今，他在學術和企業界都有成就，雲計算管理軟件的開創，帶給他智慧產權的回報，他願意回饋社會。在北約克寬敞舒適的住宅裡，與筆者品茗對談，雖然謙稱已到中年，這一生中最有智慧和衝勁的時代已經過去，但他兩眼仍閃爍著充滿自信的神采，撫今追昔，雖有一份感慨，但更多一份沉澱後的自信。



1980年年輕時的周松年，出國前
攝於北京天壇。

Beijing, just before going to US
to study, 1980



周松年1982畢業於波士頓東北大學時留影。
Graduated from Northeastern University, Boston,
USA, 1982



1997年，周松年博士與「平台電腦公司」共同創立
人王敬文博士(中)及武冰共慶獲創業家獎。

Celebrating Entrepreneur of the Year award from
the Association of Chinese Canadian Entrepreneurs in
1997 with Platform Computing co-founders
Dr. Jingwen Wang and Bing Wu



1998年2月當選為中國「國際人才」
雜誌的封面人物。

Elected as the Cover Figure in
International Talent magazine in China
in 1998



2002年周松年接受Ernest & Young最佳企業家獎。
Receiving the award of the 2002 Ernest & Young
Technology Entrepreneur of the Year



周松年為北京工業大學加拿大校友會創會會長，圖為2006年春節聯歡會上合影。

Celebrating 2006 Chinese New year with Alumni Association of Beijing University of Technology, as its founding chairman



多倫多大學中國同學會2009年年會上，周松年應邀作主題演講談創業經驗，並與同學們合影。

Giving a keynote speech on entrepreneurship at the 2009 University of Toronto Chinese Student Association Annual Conference

Dr. Songnian Zhou

When Songnian Zhou was selected to be this year's Chinese Canadian Legend Award recipient, an immigrant from China told me that someone like Zhou with his achievements should have been awarded a long time ago. Although this recognition comes late, the Asian Business Network Association rectified the omission by putting Songnian Zhou on this year's slate, and the independent panel of judges also made a wise decision. This recognition will allow more Chinese Canadians, especially those from Hong Kong and Taiwan, to have an opportunity to know this successful entrepreneur who gave up his tenured professorship to build a high tech company: Platform Computing Corporation.

For over a decade, there have been a lot of news articles written about Zhou, not only in Chinese, but also in English, including a featured article in the Globe and Mail. Before the interview, the author spent some time reading these articles. There is no doubt that Zhou deserves a lot of respect for overcoming the tremendous difficulties he faced in his studies and in creating a new company. Although Zhou is a very talented individual, if he had not been able to persevere, to not give up, to not give in, and to try and try again, he would not have had the success he has today.

Songnian Zhou was born to a family with a capitalist background in 1956. In the early days of Communist China, Songnian's family was viewed as being 'bad elements', and when the Cultural Revolution broke out in 1966, his living stipend was only 6 RMB for each month. Needless to say, life was difficult, and all his five older siblings were sent away to the countryside to do hard labour. The exception was

Songnian, who, because he was the youngest, was allowed to stay with his parents. He loved to read and was able to study the books left by his brothers and sisters. Over time he did a lot of learning on his own. At seventeen, with three more years of the Cultural Revolution left, he was sent to work in an internal combustion engine factory in Beijing.

After the Cultural Revolution ended, Deng Xiaoping ordered the university entrance examination to be reinstated, no entrance exams having been held for the previous ten years. Songnian took the examination as a self-learner, and was able to get admitted into the Department of Control Automation at the Beijing University of Technology. He became one of the first groups of students to enter university after the Cultural Revolution, and it was a turning point in his life. Many people had to abandon their studies because of the unrest and turmoil over that period. At the university, there were large age gaps among the students. The oldest was 30 years old, while the youngest was 18, and everyone studied hard. In 1980, the President of Northeastern University, Boston, Massachusetts, led a delegation to visit China. He offered to take four students from China to their university in a student exchange program. Zhou was in 2nd year at that time and he was selected to be one of the four to enter Northeastern University 3rd year, his exam results being top among his class. He gave up Control Automation to switch to Computer Science. Overcoming the difficulty of learning English, he graduated with the highest mark from among 800 students two years later. Since he was interested in computer science, he applied to the University of California at Berkeley to study a Master's degree and a PhD degree in their computer science program. After spending five years at Berkeley, in 1987, Zhou joined the faculty as a Professor of Computer Science and Electrical Engineering at the

University of Toronto. In 1992 he was made a full tenured professor.

Zhou's success was in part due to the opportunity given to him by the President of Beijing University of Technology. He was told afterwards that because he did not have the right family background, the school authorities objected to him going abroad, but the President of the university insisted that Zhou be permitted to study abroad. Finally he was allowed to go. This is why Zhou always reminds himself that he has to try his very best, so that he does not fail the expectations of the President for him.

Becoming a tenured professor at a world-renowned university would be the epitome of success to any Chinese student. But the aggressive, rebellious Zhou was not going to coast through the rest of his life. He still remembered the PhD thesis he developed at Berkeley on 'distributed computing systems resource management'.

Since the first generation computer appeared in 1946, with incessant changes, the computer entered the 4th generation by the 1990s. With its convenient minute size, it functions just like a human brain and can be used everywhere. The software it uses now changes from centralized mainframe to distributed computing. However, each of the personal computers and servers still works standalone basically. This type of operation is suited to small scale computing. But if one wants to do large scale computing, then it is woefully inadequate. When Zhou was doing research at Berkeley, he already thought of this problem and his PhD thesis was based on the concept of resource sharing. When Zhou was teaching at the University of Toronto, he continued to do research and look for opportunities. He found that

many large enterprises had thousands of computers with very low utilization rate. He decided he wanted to solve this problem. At that time Northern Telecom was very interested in his load sharing concept, and gave him hundreds of thousands of dollars in research funds. Zhou led a research team to try to tie together the personal computers and servers in a network, so that they could share their computing resources collaboratively.

When the work showed some fruitful results, the 35-year-old Zhou took a sabbatical in August 1992 to start a company, using \$200,000 as seed money with two other university graduates from China: Wong Jingwen and Wu Bing. The company is called Platform Computing Corporation. The first product was a piece of software called Load Sharing Facility (LSF), with Nortel and Pratt and Whitney among their first clients. Now it has been 18 years, and after continuous improvements and innovation, they now have 2000 clients over the world, with not one dissatisfied client among them. All the major world computer companies such as IBM, Hitachi, Dell, HP, NEC Sony, and AMD all use the LSF software from Platform Computing.

Currently Platform has branches all over the world, with close to six hundred technical experts, two hundred in Canada, and over one hundred in Beijing and Xian. Every year their revenue and profit increase, and even the aerospace industry in China uses LSF, evidence of how effective this software is.

Zhou uses some simple language to explain the concept behind LSF. To put it simply, it is a computing grid. Google calls it Cloud

Computing. In other words, use the network to form a humongous computer, sharing all the resources collaboratively. In the 18 years since Platform Computing has been established, there have been three main products, LSF in 1992, Symphony in 2002 based on Parallel Computing, and in 2009 the ISF software was introduced for 'Cloud Computing' with the same basic principles, but with different applications and operating environments.

Although Platform Computing expands continuously and its staff increases each year, Zhou does not plan to issue an IPO (initial public offering). He says that Platform Computing is the largest privately-owned software company in Canada. He is happy with the academic and research environment in North America, which encourages and supports innovation and research. He can keep on trying new things, and use the intellectual property to build wealth. He feels that China still has a long way to go, with its 'examination culture' where students can score high marks in tests, but they are not encouraged to be creative.

Looking back on the ten years of Cultural Revolution in China, Zhou says that it was undoubtedly a catastrophe. It was an extremely difficult past, and he treasures the precious opportunities that he has had. On the corruption and wastefulness of some of China's bureaucrats, he feels it is sinful, and reflects a general loss of personal values and ethical and moral standards. Thinking about the last three years of the Cultural Revolution, he described his time at the factory as doing 'hard labour'. Now that he has firmly established himself in the academic and business world, the intellectual property of 'cloud computing' has given him reward, not only in money, but also in satisfaction. His whole family lives in a large and comfortable house

in North York. Although he says he is now middle-aged, and the adrenalin does not flow as much as before, his eyes are still shining bright for a confident future, but they also reflect sadness for the past.

Platform Computing has established offices in Beijing and Xian, training local technical talent and transferring high-tech knowhow. This contribution to China's technology development, this building of a bridge between the two countries, is testimony to Zhou's foresight and future legacy.