Entrepreneurship Saves Hong Kong – music education software in blue ocean

[Hong Kong Economic Journal Monthly - Hong Kong, 01 Jun 2013] We interviewed PLAYNOTE LIMITED CEO in Hong Kong Science and Technology Park. His company focuses on research and development of products and services for music education and appreciation. They provide the product and services through its digital signal processing, artificial intelligence and cloud computing technology. The main product launched this year is AURALBOOK.

Eric Yung, CEO of Playnote, has cross-industry academic and professional background. He has his bachelor's degree in electronic engineering, master of philosophy degree in electrical and electronic engineering, master of business administration degree, all from the Hong Kong University of Science and Technology and a bachelor degree of law from the University of London. He is also a member, composer and author for the society of Hong Kong (CASH). At the same time, he is a pianist, orchestra conductor and opera tenor. Other than his expertise with cross-subjects and his cross-industry knowledge, he is also co-founder and former executive director of Hong Kong listed company, Perception Digital.

Entrepreneur receives Grand Award with cross-subject knowledge

Eric Yung has his Master's degree, is a professional musician and IT guy. This is already a surprise. He combines all his knowledge including IT, music, management and legal together to form a company and launch a product. This small company with only 4 full time staff members just launched the App in less than 1-year time. The company received the Best Startup Grand Award in the Asia Pacific ICT Awards (APICTA) 2012. Cherrypicks received the Grand Award at the APICTA 2012 but Cherrypicks is the leading company in mobile app development and has hired more than 150 staff members.

Eric said the flagship product is an App called, "AURALBOOK." AURLABOOK is music education software but is not like a teacher who teaches kids to learn music notes. Its main purpose is to help music students prepare the skills require in the aural part of professional music examinations, including the Associated Board of Royal Schools of Music (ABRSM) in the UK, Australian Music Examination Board (AMEB), Royal Conservatory of Music (RCM) in Canada, etc.

He explained that the principle of AURALBOOK is to let artificial intelligence "listen" to students' performances in singing, clapping, playing piano or violin. The artificial intelligence understands the pitches, beats, skill rhythm and strength of the performance. It will then use a real "human" voice and music sheet to analyze the performance and provide suggestions and comments to students.

"Music Teacher" in pocket to prepare for aural part of exam

"AURALBOOK can be installed in an iPhone, iPad and Android mobile device," said Eric Yung. "When students practice playing piano, the parents can still understand their level and progress. However, when students practice singing, it is difficult for a parent to know where the student needs improvement and this App can help the student to practice. For example, in grade one, the software will simulate the

requirement of the examination and play three pieces of music. When one piece is played, the student follows and sings. This software will then use the real 'human' voice to analyze the performance in detail," Eric said. "The app, just like a real music teacher, teaches students step by step and lets them fulfill the requirement of a professional examination. All clapping and singing will be uploaded and stored in the cloud server. It does not just help the student to review but the server will also analyze the performance of a student in a different period to find out the strengths and weaknesses and provide suggestions. For a music teacher, he or she can fin dout the weaknesses of the student in the by AURALBOOK's cloud storage services."

Eric points out that the main objective of AURALBOOK is to let the mechanical training process be done by the computer so that the music teacher can concentrate in teaching expression and performance.

AURALBOOK currently supports English and Cantonese. "About 100,000 students take the piano examination in Hong Kong. There are only about 300,000 students in the UK so Hong Kong is one of our major markets," Eric said. "We also developed AURALBOOK to fit the exam requirements in the UK, Australia and Canada, too."

When discussing the difficulty in software development, Eric said, "By using artificial intelligence to train the singing and clapping skills, AURALBOOK has started a brand new market which never existed before. We need to find a lot of professional musicians to test. The main difficulty is to ensure the product can listen to the singing style of the people from different regions and also fulfill the requirements of examinations from different countries.

More than 100,000 have downloaded

Eric points out that the trial version of AURALBOOK for the UK, Australia and Canada examination (each grade provides 10 questions) can be downloaded in the Apple AppStore or Google Play for free. More than 100,000 have been downloaded already. The paid version is in the format of an electronic book. Each book and grade provides 60 extra questions. The fee for one book for grade one is HKD$98 and for grade eight is HKD$158. There are a number of electronic books in each grade, which can provide hundreds of questions. According to current feedback, most are positive. From another point of view, AURALBOOK can be treated as an intensive last minute lesson. Charging less than HKD$200 is quite inexpensive. The hourly charge for a music teacher is already much higher than this.

Science park helps to accelerate the research

Eric believes that Science Park helped his technology company a lot. Playnote, which was founded in 2010, is still in the incubation program. "At least it can provide a first year rent free Grade A office," Eric said. "When Perception Digital was founded, its office was at a village house beside HKUST. How do we now have a sea view office? Science Park provided a subsidy and helped the company to build a network that helped us a lot. Of course, whether the product can be sold is still dependent upon us. As this is the not the first time I have founded a company, I can feel the difference when comparing the two."

Eric points out that from the point of view of a technology entrepreneur, with help from Science Park, the speed of R&D can be increased and decrease the risk to the entrepreneur.

Eric said that Playnote will continue to develop AURALBOOK for different regions and in different versions. They will continue to develop software for practicing different musical instruments. If readers want to know the newest update of Playnote, readers can browse Playnote's website at http://www.playnote.com

▲容志偉既有電子工程、法律和管理的學術背景，又是專業音樂人，在科學園充分發揮跨學科的特長。

香港相比先進國家仍略嫌遜色，因此早在數年前，他接受《中大校友》（2010年12月號）訪問時，便忠告創業者，不要妄想單憑一種技術或產品便可一勞永逸，使企業永遠盈利，反而要靈活求變，不斷進步。

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音樂教育軟件拓「藍海」

筆者訪問的另一家科學園創業公司是Playnote Limited，這家公司專門研發有關音樂教育及賞析的產品及服務，主要是透過數碼訊號處理、人工智能和雲端運算技術，為用戶提供解決方案，而今年的重點產品為AURALBOOK音樂教育軟件。

Playnote Limited的CEO容志偉擁有跨行業的學術和專業背景，包括香港科技大學電子工程學學士、電機及電子工程學碩士、工商管理碩士、英國倫敦大學法律學士、香港作曲及

作詞家協會（CASH）會員，同時也是鋼琴家、管弦樂團指揮和歌劇男高音。除了是跨學科、跨行業的專才外，他還是本港上市公司幻音數碼的聯合創辦人和前執行董事。

跨學科創業奪軟件大獎

一個擁有碩士學歷的IT人，同時也是專業的音樂人，這本身已足以令人驚奇，何況他把所學過的資訊科技、音樂、管理甚至法律知識結合在一起，創辦公司，推出產品。而且這家公司還以只有4名全職員工的規模，面世不足一年的手機應用程式，在去年度的亞太資訊及通訊科技獎（APICTA 2012）中，奪得最佳創業公司大獎，而另一家在APICTA 2012得獎的本港手機apps開發商Cherrypicks，卻是擁有150名員工的行業龍頭，這實在令人有「大衛挑戰歌利亞」的感覺！

容志偉表示，Playnote目前主打的產品AURALBOOK是一款音樂教育

軟件，但不是教小朋友學習音符的入門軟件，而是幫助音樂學生練習專業考試（例如英國皇家音樂學院、澳洲音樂考試委員會和加拿大皇家音樂學院的級別試）中演奏和視唱測驗所需的技巧。

他解釋，AURALBOOK的工作原理，主要是通過人工智能「聽」到學生唱歌、拍手、彈鋼琴或拉小提琴的音準、拍子、技巧、節奏和力度等，以真人發聲和五線譜分析其表現，並向學生提出意見，指出需要改善的地方和建議。

隨身「音樂老師」教考試

「AURALBOOK可以安裝於iPhone、iPad和Android流動設備上。」容志偉說：「對於學習鋼琴的學生來說，家長尚可聽彈奏了解其水平，但對於學習唱歌的學生來說，家長並不容易從其子女的歌聲中聽出需要改進的地方，這個app便可幫助學生練習。例如在Grade One，軟件會模擬考試要

求，奏出三段音樂，每奏出一段，學生跟着唱一段，然後軟件會用真人發聲，詳細分析學生表現。」他又說：「其實這個app就像一個真正的音樂老師，一步一步地訓練學生，使之符合專業考試的要求。學生的所有歌唱及打拍子的錄音，均可上傳及儲存在雲端運算伺服器，不僅便於重溫，而且伺服器亦會分析學生在不同時段練習的表現，找出學生的強項或弱點，並提出改進的建議。對於音樂老師來說，也可通過AURALBOOK的雲端儲存功能，找出學生在練習過程中的不足之處，提出改進建議。」

容志偉指出，開發AURALBOOK，旨在希望將機械性的音樂練習交給電腦處理，而對於音樂中帶感情的部分，軟件始終無法取代老師的作用。

AURALBOOK目前主要有英語和粵語兩種版本，「本港每年有10萬學生考鋼琴試，而整個英國的考生，每年也不過30萬，基於這個比例，香

港是我們主要的市場。」他說：「除此之外，我們也按照英國、澳洲和加拿大的不同要求，推出不同版本的AURALBOOK。」

談及開發軟件的困難，容志偉說：「AURALBOOK以人工智能對真人彈唱打拍子的模式，開闢了一個嶄新的市場，而這種模式以往並沒先例，我們需要找很多音樂家試唱。要確保不同地區人士的唱腔，符合不同國家的考試標準，這方面難度很大。」

全球10萬人已下載

他指出，適用於英國、澳洲和加拿大考試的AURALBOOK試用版（每一級包括10條題目），可在Apple App Store或Google Play免費下載，目前全球約有10萬人已下載了該程式。「收費版本則提供電子書，每一級包括60條題目，Grade One售價98港元，Grade Eight則賣128港元，每一級都有數本電子書，百多二百條題

目。按用戶目前反饋的意見，正面的佔多數，某程度上，可視為音樂『雞精班』。況且，每級不足200港元的售價，鋼琴老師教1小時的收費也不只此數了！」

科學園有助加速研發

容志偉認為，科學園對於研發新科技的公司（2010年創辦的Playnote Ltd.，仍處於科培計劃階段）幫助很大，「起碼提供首年免租的『甲級寫字樓』。」他打趣地說：「當年幻音數碼只是在科大旁邊一條村的村屋裏創辦，哪有海景辦公室呢？還有，科學園提供的資助和協助公司建立人脈關係，都對創業者幫助很大，當然，產品有沒有人買，最終還得靠自己，但我並非首次創業，比較之下，便感到前後有天淵之別了！」

他指出，對於科技創業者而言，有了科學園的幫助，可以加速研發（R&D）的速度，減輕創業者需要承擔的風險。

容志偉說，Playnote將繼續研發不同地區、不同版本的AURALBOOK，未來還會開發不同樂器的練習軟件。欲了解該公司的最新發展，可瀏覽網頁http://www.playnote.com/

結語

從以上兩位創業者的訪問，讀者不難看出，創業難的問題在香港確實存在。然而，做科研「除了人才，還是人才」，只要特區政府能夠提供一些助力，人才還是願意留港發展，並貢獻自己的創意，畢竟，「藍海」也是由「紅海」脫穎而出的！
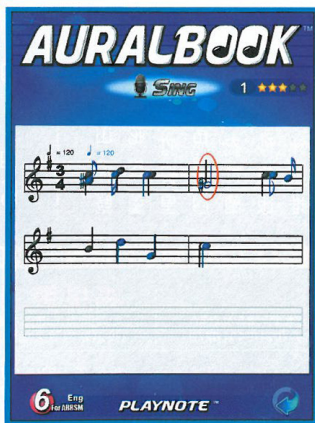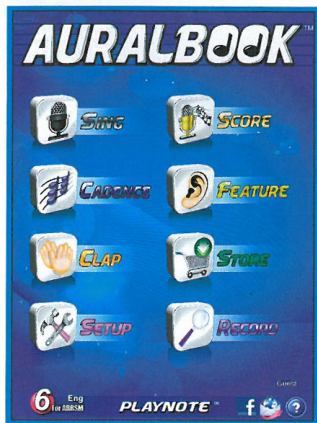
▲Playnote Auralbook利用人工智能技術，用戶儼如面對音樂老師。（被訪者提供）