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Theme Story - Crossing the Online and Offline Worlds In the Future of Integrated Virtual and Real Worlds, Can Humans Lead Design?

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/ THEME STORY /

Crossing the Online and
Offline Worlds

IN THE FUTURE OF INTEGRATED VIRTUAL AND REAL WORLDS, CAN HUMANS LEAD DESIGN?

穿越線上線下 虛實整合未來
人類能主導設計嗎？

TEXT / LUCAS NG PHOTOGRAPHY / HONG KONG DESIGN INSTITUTE, MIN CHAN

The film and entertainment industries are undergoing epochal transformations. Online streaming, high-definition imagery and artificial intelligence (AI) are not just changing business models, these technologies are also radically altering the design thinking that guides media productions.

The Hong Kong Design Institute (HKDI) graduates, Min Chan and Chak Yun Hei, have been playing crucial roles in this transformation. Chan, an Image Director, designs immersive costumes that help in the element of world-building in productions. Chak, a Director of Innovation and Product Development, develops TV hardware and software tailored to future consumer entertainment modes and broadcasting technologies. Their experiences demonstrate how, despite the flurry of technological changes, their respective roles maintain fundamental continuity, with Chan creating beautiful designs and Chak driving industry development.

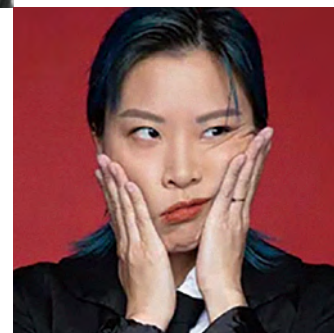
影視娛樂產業龐大，除了實體或線上平台、營運團隊或台前幕後工作人員之外，原來設計思維亦很大程度上左右著影視娛樂作品質素，甚至能夠改變整個行業生態體系。香港知專設計學院 (HKDI) 畢業生陳巧倩 (Min) 和翟潤熙 (Hei) 分別任職服裝指導和創新產品規劃運營部總監，前者負責設計戲服造型，通過精心的服裝設計，讓演員和觀眾投入戲劇世界；後者則專責研發電視機硬件和軟件，針對未來消費者娛樂模式及播放技術轉變而開發商機。隨著互聯網、串流播放平台、高清影像及人工智能 (AI) 技術的普及，如何靈活運用設計思維順應影視娛樂產業轉型，是二人無法避免的共同挑戰。兩人的經驗證明，設計不僅是美化表象，更是推動產業發展的重要動力。



CHAK YUN HEI 翟潤熙

Currently the Director of Innovation and Product Development at TCL Corporate Research (Hong Kong) Company Limited, Chak Yun Hei is a graduate of Architecture, Interior and Product Design Department at the HKDI. He previously worked as a Product Designer at Canon, where he won the Red Dot: Best of the Best Award in 2013 for the "X Mark II Calculator".

現職 TCL 工業研究院 (香港) 有限公司創新產品規劃運營部總監，HKDI 建築、室內及產品設計學系畢業生，曾於 Canon 佳能集團任職產品設計師，在任期間憑 X Mark II 計數機贏獲 2013 年度紅點最佳設計獎 (Red Dot : Best of the Best)。



MIN CHAN 陳巧倩

Min Chan is a Film Costume Designer and a graduate of the Fashion and Image Design Department at the HKDI. She has worked on numerous films, television series and advertisements, including "In Broad Daylight", "Warriors of Future" and "Shock Wave 2", as well as the series "I SWIM". She was nominated for the "Best Costume Design" award at the 60th Golden Horse Awards for her work on "In Broad Daylight".

現職電影服裝指導，HKDI 時裝及形象設計學系畢業生，曾參與電影《白日之下》、《明日戰記》、《拆彈專家 2》、劇集《I SWIM》等多部電影、劇集及廣告製作，並憑《白日之下》獲第 60 屆金馬獎提名「最佳造型設計」。

Conscious transformation

Drawing on their experiences of technological disruption, Chan and Chak outline their immediate impact and how they proactively changed their design approaches to align with the new normal, even altering their career paths to better position themselves for the industry's future.

Chan recalls, "In the past, we had to go to libraries or specific websites with accounts to access fashion show information. Seasonal fashion information was minimal, unlike now, where you can access real-time information on Instagram. For some senior practitioners, they struggled with going online and had to rely on clipping magazines and other printed materials for work. Previously, we actively searched for information, but now there's an overload of free information with inadequate filtering, often causing one to feel overwhelmed by AI systems and algorithms and leading to aesthetic fatigue and a sense of conflict."

Today's online image resources provide designers with endless free and convenient images. However, Chan ponders the possibility of this technology replacing current art and design jobs. Chan said, "I experimented with AI to generate works in the style of the movie 'Dune' and American designer Rick Owens. It could generate an entire fashion series beautifully, which felt intimidating. But with increased iterations, the AI output became repetitive."

Based on her experience, Chan believes AI can assist film and art design departments by directly generating atmospheric visuals and colour palettes. However, AI has its limitations regarding the actual production of costumes. "Current AI technology cannot weave a sweater like humans, which is why I believe I still have a few more years of job security before AI fully replaces

designers. Moreover, AI-generated character designs lack the 'human touch' and sense of life, which is evident through the lens and human actors' performances."

Reflecting on the media's online transition from the mid-2010s onwards, Chan recalls that many media outlets drastically changed their presentation methods. "Print media declined, becoming network media dominant, with significant differences in reading methods and speeds... Previously, we mainly read A4-sized printed media, where clothes could be adjusted with pins and clips during photoshoots or retouched later. But now, with a focus on film and TV, the process is like moving from 2D to 3D, where tiny details are magnified on giant screens, making even the smallest thread stand out, which is very concerning."

Silent elimination

While Chan is a film and entertainment producer, Chak is the one who brings these works to the audience. As a Director of Innovation and Product Development at TCL Corporate Research (Hong Kong) Company Limited, his products, such as mobile phones, personal computers, digital media and smart TVs, deliver movies and entertainment programmes to consumers today. He has a different perspective on the relationship between technology, design thinking and industry transformation. Chak says, "I graduated with a Product Design and Technology major. My early work focused on craftsmanship. We were among the first batch of academically trained newcomers familiar with Photoshop 4.0, AutoCAD and 3D technology. At that time, many software programmes were still imperfect, with numerous programme flaws. Simply avoiding these pitfalls to complete the work was considered excellent performance in those days."

Chak later managed the design team at Canon, winning the Red Dot: Best of the Best Award in 2013 for the "X Mark II Calculator". However, this experience, which represented the pinnacle of his career at that point, also alerted him to its coming demise. Quite a lot of electronic products were quietly disappearing from daily life, underscoring the urgency of his transformation. Chak said, "Apps have replaced radios and alarm clocks; numerous products have shifted from hardware to software. In traditional industrial design and production lines, software was often seen as a mere accessory to hardware earlier. However, from today's perspective, it is clear that software has become a far more crucial component."

Chak predicted that the outdated hardware-centric models, which were slow to adapt to user experience (UX) expectations, would eventually be phased out for the more responsive app economy. Chak says, "Now the industry emphasises interactive design and UX, which were areas I feared in the past. As a designer, the world is changing, and I need to understand changing user needs and focus on problem-solving. The product forms of the past cannot address future issues." As the product design industry changed and single-purpose gadgets like point-and-shoot cameras and electronic dictionaries disappeared, Chak proactively sought to thrive in the new environment.

"The current situation is similar to the past. Today, many people still do not fully comprehend the capabilities of AI, just as individuals in the past were sceptical about the decline of 'dumb phones' with the rise of smartphones," Chak says. He described how in the past, product designers primarily focused on craftsmanship and product specifications. However, upon joining TCL Group, he found that the scope



Still from the "Best Costume Design" nominee at the 60th Golden Horse Awards, movie "In Broad Daylight".
第60屆金馬獎「最佳造型設計」提名電影《白日之下》的劇照。

of product design had expanded significantly. Chak had to consider UX, system design, interactive design, software engineering, interface design and product and service pricing models. This reflects a crucial trend in technological development — a shift from simple product design to intertwined product and service development schedules.

Embracing the virtual world

Both Chan and Chak note that the rise of the Internet has disrupted traditional pricing, media consumption models and consumer lifestyles, prompting changes on the production end. "On one hand, some people specialise in improving audio-visual data compression technology. For example, YouTube previously used Flash as the default player, but now advanced HTML5 compression technology allows users to access large amounts of high-definition media content more efficiently. On the other hand, some people develop broadband technologies, with the advent of 5G and 6G technology, enabling users to access data-intensive media anytime, anywhere, leading to new changes and shifts in demand," says Chak.

While software supplanted many electronics, it also radically changed

many surviving products. TVs no longer broadcast one-way, they support user interfaces and software installations, which in turn has spawned a new ecosystem in the industry. As a Director of Innovation and Product Development, Chak constantly monitors international film and entertainment industry trends to seek out business opportunities amid technological changes. "Current film and media operation models are mainly divided into several types, such as YouTube's AVOD (Note 1), Netflix's SVOD (Note 2) and the continuation of traditional TV's FAST (Note 3), each with different operation models. Many institutions and apps in the US operate local TV stations through FAST, offering users customised media platforms with hundreds or thousands of channels. These economic activities are estimated to generate up to US\$200 billions in revenue annually on TV alone." He explains, adding that TCL has not yet benefited from these changes and is contemplating how to enter this new industry.

Chan also felt the change in product functionality. Chan said, "Tasks previously done on computers could later be done on tablets and then on smartphones as users got used to the new forms of devices." Chak added

that the key to whether technological changes will impact at all lies in the transferability of product demand. "TV screens are so large, yet users cannot perform image editing tasks via remote control, meaning the demand cannot be transferred. Now, with the advent of AI generation technology and the introduction of intent interaction technology, AI-trained systems can interpret human intentions through subtle movements and fulfil complex commands. This will drive large-scale industry transformation. When the entire ecosystem forces you to change, you will change, won't you?"

Who leads whom?

Chak believes AI will revolutionise many industries' operational models, standards and regulations and extend far beyond its current applications. Drawing on his experience with AI-generated video technology and AI assistant software development, he points out that AI's rapid evolution and decline in costs signal its widespread adoption in the coming future, which can potentially overturn traditional production models and businesses. "If industry practitioners fail to adapt proactively, they will be left behind, passively waiting to be overwhelmed by the disruption," Chak predicts.



Chan believes she still has a few more years of job security.

AI-generated character designs lack the 'human touch' and sense of life, evident through the lens and actors' performances.

陳巧倩認為工作仍不會被 AI 取代。AI 生成角色造型會失去『人味』和生活感，這通過鏡頭和演員的表現都能清楚看到。

Regarding how to adapt to technological advancements, Chak says, "All technology is moving towards automation. Designers should not consider themselves as 'craftsmen' in the traditional sense but rather as 'tool users', with management and decision-making capabilities becoming increasingly important. This is similar to Hong Kong's past development, no longer 'factory workers' wielding soldering irons, but production managers."

Indeed, AI generation technology is reshaping industries and elevating the importance of improving management, decision-making and innovation capabilities over simple manual operations. This transformation presents an opportunity for those willing to adapt to new realities. Perhaps these changes will give humans an unexpected chance to continue leading in design.

自覺轉型

回顧過往的科技演變，他們切身感受其中衝擊，主動改變設計方式，甚至扭轉了自己的事業方向。Min 回憶說：「從前要到圖書館或指定網站開立帳戶，才能閱覽時裝發佈會資訊。當時時尚資訊非常有限，不像現在打開 Instagram 就

能閱覽即時資訊。一些前輩連上網都有困難，只能通過剪貼雜誌與其他印刷素材工作。以前多數需要自己主動搜尋資訊，反觀現時接受免費資訊太多，缺乏適當的篩選，如被 AI 系統和演算法牽著走，反而感到有些審美疲勞，有時甚至覺得有與其角力的感覺。」

現今網上圖像資源豐富，無疑為設計師提供無限免費資源，帶來方便，但 AI 圖像生成技術隨時生成海量設計圖，不禁令 Min 聯想到科技將會取代現有工種的可能性。她說：「我試過運用 AI，以電影《沙丘瀚戰》和 Rick Owens 的風格生成作品。它不但能生成整個時裝系列，而且還非常美麗，當下感到此技術可怕之處。但隨著生成次數越多，作品越來越重覆，我反而稍感安慰，因自己還有多幾年的工作空間。」

根據 Min 的工作經驗，她認為 AI 對電影美術設計部門確有幫助，能直接生成氣氛圖樣和調色版，但對製作戲服貢獻不大。「單憑現時 AI 技術，它們還無法如人手般編織出一件冷衫。這是我認為工作仍不會被 AI 取代的主要原因。AI 生成角色造型的做法題，但卻會失去『人味』和生活感，這通過鏡頭和演員的表現都能清楚看到。」

回顧 2010 年代中期的變遷，Min 對此有深刻的體會。她回想起那段時期，許多媒體同時走向線上，呈現方式發生了翻

天覆地的變化。「紙媒沒落，變成網絡媒體主導，閱讀方式和速度有明顯分別。以前多數閱讀 A4 尺寸紙張印刷媒介，拍硬照時衣服可以利用針扣和夾子補救，或用後期技術修飾。可是現在以影視為主，過程如同 2D 躍升到 3D，巨型屏幕上微小細節一覽無遺，突出來的線頭也一清二楚，令我十分在意。」

靜寂淘汰

假如 Min 是影視娛樂作品的生產者，Hei 則是把影視娛樂作品帶入生活的中間人。他是 TCL 科技集團創意及產品總監，旗下產品如手提電話、個人電腦、數字媒體、智能電視等等都是現代大眾收看電影和娛樂節目的常用設備，對科技、設計思維和產業轉型之間的關係體會更深。Hei 回顧往日：「我是主修產品設計及科技。早年工作偏向工藝，畢業時仍在 Photoshop 4.0，我們算是首批懂得用 AutoCAD 和 3D 技術的學院派新人。當時很多軟件仍未完善，還有很多程式缺陷，只要懂得避開這些漏洞完成工作，已屬表現出色。」

Hei 後來於佳能集團 (Canon) 負責設計管理，期間憑 X Mark II 計算機奪得 2013 年度紅點最佳設計獎 (Red Dot: Best of the Best)。在這段工作經歷中，他逐漸感受到產業正在發生翻天覆地的變化。許多過去常見的電子產品靜靜消失於生活之中，令人感受到轉型的逼切。他說：「收音機、鬧鐘已被應用程式取

代，大量產品從硬件變成軟件。傳統工業設計和生產線，都把軟件視為硬件的附屬功能，設計和製作馬虎，隨便外判請人完成。但從今日角度看，自會明白軟件是更重要的一環。」

按照既定計劃生產傳統電子器材，同時觀察用家需求轉變，他預料長此下去這種模式終被淘汰。他說：「現在業界強調互動設計、使用者體驗 (UX)，都是我當年懼怕的範疇。世界正在改變，作為設計師，我得了解用戶的需求轉變，著眼如何解決問題。當時的產品形態無法解決以後的問題。」傻瓜機 (全自動數碼相機) 和電子辭典等產品線陸續消失，驅使他主動求變，應對產品設計之本質變化。

Hei 說：「現在情況跟當時相似，許多人仍未認識到 AI 可以做甚麼，正如當時的人不信傻瓜機會隨手機興起而沒落一樣。」他形容過去產品設計師著重工藝，主力著眼於產品規格。隨後他到 TCL 集團工作，產品設計的視野已大大拓寬，需要考慮 UX、系統設計、互動設計、軟件工程、介面設計、產品和服務收費模式等多個層面。這反映了技術發展的一個重要趨勢——從單純的產品設計，逐步轉向更加全面和系統性的產品及服務開發。

投身虛擬層面

綜觀過去二十年，二人不約而同表示互聯網的迅速發展，的確徹底改變了人們的生活方式和產業格局，傳統營運模式和服務收費規則都要適應時代更替。Hei 進一步解釋說：「一方面有人專門改良影音數據壓縮技術，如 YouTube 以前用 Flash 作為預設播放器，現在 HTML5 壓縮技術已非常卓越，用戶能以更高效獲取大量高清媒體內容；另一方面有人研發網絡寬頻技術，5G 和 6G 技術的問世，用戶能隨時隨地收看數據用量極大的媒體，由此衍生出全新的需求變化和轉移。」

科技發展讓各種電子產品的本質有別從前，電視不再單向播放劇集和廣告，更支援使用介面和安裝軟件的多功能，催生出全新的產業鏈。Hei 身為創新產品規劃運營部總監，時刻留意國際影視娛樂產業動態，自覺要從轉變之中發掘商機。他續說：「時下影視媒體營運模式主要分為以下幾種，例如 YouTube 的 AVOD (註一)、Netflix 的 SVOD (註二)，

還有延續傳統電視的 FAST (註三)，營運模式各有不同。美國就有不少機構和應用程式以 FAST 營運地方電視台，為用戶搜羅過百、千條頻道內容，定製影視平台。這些經濟活動單在電視機上，一年估計創造高達二千億美金的收益。」Hei 表示，TCL 過去未能在此領域獲得收益，現在正構思如何進軍這個產業。

Min 對產品功能轉變亦有體會。她說：「以前用電腦進行的工序，後來平板電腦也能做到；習慣使用平板電腦後，智能電話又開始能做到相同的任務。」Hei 進一步補充，指出能否轉移需求才是關鍵。「電視顯示屏這麼大，用戶卻無法遙控進行圖像編輯工作，需求無法轉移。現在生成 AI 技術面世，甚至引入意圖互動技術，經 AI 學習之系統能憑細微動作判斷人的意圖，並完成複雜指令。這將會促發大規模產業轉型。當整個生態逼著你改變時，你會不會去改變？」可以看出，技術的發展是一個持續演化的過程，設計師和企業必須時刻關注變化，並主動適應，才能在這個瞬息萬變的環境中把握住機遇，創造新的價值。

是誰主導誰？

AI 生成技術近年不斷普及和快速發展，除了能夠生成服裝樣式、電影氣氛圖、調色板、影片和文字內容，Hei 還相信它會革新許多產業營運模式、作業標準和規則。他根據 AI 生成影片技術、人工智能助理軟體開發經驗，指出 AI 技術急速演化，應用成本大幅下降，進一步普及是大勢所趨，甚至有機會推翻固有生產模式和企業。「從業者一日不轉變，就只能站著等待被淹沒。」

至於如何順應科技發展？他說：「任何技術都朝著自動化的方向發展。我們要明白自己不再是傳統意義上的『工藝人』，而是『運用工具的人』；管理和決策能力將變得更加重要。這跟香港過往的發展一樣，不再是『工廠妹』拿著辣雞 (烙鐵) 動手焊接東西，而是要管理生產。」AI 生成技術正在重塑各個行業。這需要我們更多關注管理、決策及創新能力的提升，而非簡單的手工操作。只有緊跟技術進步，設計師和企業時刻關注變化並主動適應，才能在瞬息萬變的環境中把握住機遇，創造新的價值。也許這就是人能繼續主導設計的另一契機。

Note 1: AVOD

(Advertising Video on Demand)
This model relies on advertising revenue for profit. Users can watch video content for free but must watch a designated advertisement first.

Note 2: SVOD

(Subscription Video on Demand)
This model relies on membership fees for profit. Users agree to a subscription agreement and pay a specified monthly or annual fee to watch all videos on the platform.

Note 3: FAST

(Free Ad-Supported Streaming Television)
This is a new form of streaming in the audiovisual field, based on advertising revenue, but does not require any monthly fees or even registration.

註一：AVOD

(Advertising Video on Demand)
靠廣告收入來賺取利潤，用戶可以免費觀看影片內容，但觀看前必須先強制觀看一段指定廣告。

註二：SVOD

(Subscription Video on Demand)
此模式是依靠收取會員會費來賺取盈利，用戶只要同意訂閱的協議，繳付指定月費或年費，便可以隨意觀賞平台提供的所有影片。

註三：FAST

(Free Ad-Supported Streaming Television)
是影音串流領域的新興型態，以廣告營收為營利基礎，但不需收任何月費甚至註冊。