

TED演讲者: Poppy Crum | 波碧·克文

演讲标题: Technology that knows what you're feeling | 科技洞悉你的感受

内容概要: What happens when technology knows more about us than we do? Poppy Crum studies how we express emotions -- and she suggests the end of the poker face is near, as new tech makes it easy to see the signals that give away how we're feeling. In a talk and demo, she shows how "empathetic technology" can read physical signals like body temperature and the chemical composition of our breath to inform on our emotional state. For better or for worse. "If we recognize the power of becoming technological empaths, we get this opportunity where technology can help us bridge the emotional and cognitive divide," Crum says.

当科技比我们更了解自己时, 会发生什么事情呢? 波碧·克文研究人类如何表达情绪。她认为扑克脸的时代终将结束, 因为科技能够轻易地读懂我们透露出来的情绪信号。在一次演讲和技术展示中, 波碧·克文展示了如何透过「同理心技术」读懂像身体温度和呼吸中的化学成份这些生理讯息, 而这些讯息能透露我们的感受。无论好坏, 克文认为「如果我们能体悟同理心的力量, 就能掌握科技, 用科技帮助我们跨越情感和认知的鸿沟。」

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What happens when technology knows more about us than we do?

當科技比我們更了解自己時, 會發生甚麼事呢? [00:12]

A computer now can detect our **slightest facial** microexpressions and be able to tell the difference between a real smile and a fake one.

現今的電腦, 它分辨得出真笑和假笑。 [00:17]

That's only the beginning.

但這只是個開始。 [00:25]

Technology has become **incredibly** intelligent and already knows a lot about our internal states.

科技日益進步, 它知道很多我們的內心世界。 [00:27]

And whether we like it or not, we already are sharing parts of our inner lives that's out of our control.

不管我們喜歡與否, 我們已將自己部分內心世界分享出去, 這不在我們的掌控之中。 [00:33]

That seems like a problem, because a lot of us like to keep what's going on inside from what people actually see.

那似乎是個問題, 因為我們當中很多人, 讓旁人無從察覺。 [00:43]

We want to have agency over what we share and what we don't.

我們想要掌握自主權去選擇 什麼可被分享、什麼不可以。 [00:50]

We all like to have a **poker face**.

我們都想要張撲克臉。 [00:55]

But I'm here to tell you that I think that's a thing of the past.

但我在這裡告訴你們, 我認為這種想法已經過時。 [00:59]

And while that might sound scary, it's not necessarily a bad thing.

儘管這件事好像頗為嚇人, [01:03]

I've spent a lot of time studying the circuits in the brain that create the unique **perceptual** realities that we each have.

我花了很多時間研究腦內的迴路, 它創造了我們獨特的感知。 [01:08]

**slightest**: adj. 极不重要的, 最少的 **facial**: adj. 面部的, 表面的; 脸的, 面部用的 / n. 美容, 美颜; 脸部按摩 **incredibly**: adv. 难以置信地; 非常地 **poker face**: 一本正经的面容; 面无表情的人 **perceptual**: adj. 知觉的; 感知的; 有知觉的

And now I bring that together with the capabilities of current technology to create new technology that does make us better, feel more, connect more.

現在我把它和當今科技結合, 創造新技術, 令我們更好、感受更多、聯繫更多。 [01:15]

And I believe to do that, we have to be OK losing some of our agency.

而我認為要達到這個目的, 我們要接受失去一些自主權。 [01:24]

With some animals, it's really amazing, and we get to **see into** their internal experiences.

和某些動物在一起時, 真的很奇妙。我們可知道牠們的內心經歷。 [01:29]

We get this **upfront** look at the **mechanistic** interaction between how they **respond to** the world around them and the state of their biological systems.

我們可直接得知 [01:36]

This is where **evolutionary** pressures like eating, **mating** and making sure we don't get eaten drive **deterministic behavioral responses** to information in the world.

這就是來自進化的壓力, 像是進食、交配和確保我們不會被吃掉, 促使確定性行為 回應我們身邊的資訊。 [01:45]

And we get to see into this window, into their internal states and their biological experiences.

而我們透過這個窗口, 透視牠們的內心狀態及生理變化。 [01:55]

**see into**: 调查; 观察...的性质 **upfront**: adj. 预付的; 在前面的; 正直的, 坦率的 / adv. 在前面; 提前支付(工资) **mechanistic**: adj. 机械论的; 机械学的 **respond to**: 响应 **evolutionary**: adj. 进化的; 发展的; 渐进的 **mating**: n. (动物等的) 交配, 交尾; 配套; (植物等的) 杂交 / v. 交配; 使紧密配合 (mate 的现在分词) **deterministic**: adj. 确定性的; 命运注定论的 **behavioral**: adj. 行为的 **responses**: n. 响应回应

It's really pretty cool.

這真的很酷。 [02:02]

Now, **stay with** me for a moment -- I'm a **violinist**, not a singer.

現在請你們忍受我一會兒。 [02:03]

But the spider's already given me a **critical** review.

但這隻蜘蛛已挑剔地批評我。 [02:07]

(Video) (Singing in a low pitch)	(低音唱歌)[02:16]
(Singing in a middle pitch)	(中音唱歌)[02:19]
(Singing in a high pitch)	(高音唱歌)[02:23]
(Singing in a low pitch)	(低音唱歌)[02:26]
(Singing in a middle pitch)	(中音唱歌)[02:29]
(Singing in a high pitch)	(高音唱歌)[02:31]
(Laughter) <b>Poppy</b> Crum: It turns out, some spiders tune their webs like <b>violins</b> to <b>resonate</b> with certain sounds.	由此可知, 有些蜘蛛會調節自己的蜘蛛網, 像小提琴一樣調至特定的音階。[02:33]
And likely, the <b>harmonics</b> of my voice as it went higher <b>coupled</b> with how loud I was singing <b>recreated</b> either the <b>predatory</b> call of an echolocating bat or a bird, and the spider did what it should.	同樣地,我唱歌的音調 隨分貝數拉高, 重新創造類似捕獵者, 蝙蝠或鳥的回聲定位。而蜘蛛做了牠應該做的事。[02:41]
<b>stay with:</b> 同...住在一起;把...坚持下去;与...并驾齐驱 <b>violinist:</b> n.小提琴演奏者,小提琴家 <b>critical:</b> adj.鉴定的; [核]临界的; 批评的, 爱挑剔的; 危险的; 决定性的; 评论的 <b>Poppy:</b> n.罂粟花; 罂粟属植物; 深红色/adj.罂粟科的 <b>violins:</b> n.小提琴 (violin的复数) <b>resonate:</b> vt.共鸣;共振/vi.共鸣;共振 <b>harmonics:</b> n.和声学;泛音;数律分析法 <b>coupled:</b> adj.耦合的;连接的;成对的;共轭的(couple的过去分词形式) <b>recreated:</b> vi.娱乐;消遣/vt.再创造;使得到娱乐/消遣 <b>predatory:</b> adj.掠夺的,掠夺成性的;食肉的;捕食生物的	
It predictively told me to bug off.	牠預言性地叫我離開。[02:53]
I love this.	我愛這樣。[02:56]
The spider's responding to its external world <b>in a way</b> that we get to see and know what's happening to its internal world.	蜘蛛回應外在環境時, 我們藉此看到並了解牠的內心世界。[02:58]
Biology is controlling the spider's response; it's wearing its internal state on its sleeve.	生理控制著蜘蛛的反應, 牠把自己最真實的情感流露出來。[03:06]
But us, humans -- we're different.	但我們,人類 — 我們不一樣。[03:13]
We like to think we have <b>cognitive</b> control over what people see, know and understand about our internal states -- our emotions, our <b>insecurities</b> , our <b>bluffs</b> , our trials and <b>tribulations</b> -- and how we respond.	我們自認能夠控制自己的感知能力。我們的內心世界、我們的情感、我們的局促不安、及我們的反應。[03:17]
We get to have our poker face.	我們需要一張撲克臉。[03:31]
Or maybe we don't.	但或者,我們其實並不需要。[03:35]
Try this with me.	跟我一起嘗試這樣做。[03:37]
Your eye <b>responds</b> to how hard your brain is working.	你的眼睛能反映出大腦使用的程度。[03:38]
The response you're about to see is driven entirely by mental effort and has nothing to do with changes in lighting.	接下來你看到的反應 和亮度沒有關係。[03:42]
<b>in a way:</b> 在某种程度上;有点儿;十分激动 <b>cognitive:</b> adj.认知的, 认识的 <b>insecurities:</b> n.不安全;不牢靠;无把握;心神不定 <b>bluffs:</b> n.吓唬;绝壁;断崖/vt.吓唬;愚弄/vi.吓唬/adj.直率的;陡峭的 <b>tribulations:</b> n.苦难(tribulation的复数形式) <b>responds:</b> 响应	
We know this from <b>neuroscience</b> .	我保證這有神經科學的根據。[03:48]
I promise, your eyes are doing the same thing as the subject in our lab, whether you want them to or not.	你的眼睛和實驗室受試者的 眼睛會做相同的事, 無論你願意與否。[03:49]
At first, you'll hear some voices.	首先你會聽到一些聲音。[03:56]
Try and understand them and keep watching the eye in front of you.	嘗試去了解, 而且定睛於你面前的眼睛。[03:58]
It's going to be hard at first, one should <b>drop out</b> , and it should get really easy.	一開始會有點難。要放棄真的很容易。[04:01]
You're going to see the change in effort in the diameter of the pupil.	從瞳孔的直徑 你可以看見心理因素的變化。[04:05]
(Video) (Two <b>overlapping</b> voices talking)	(兩種聲音重疊) 智能科技仰賴個人數據。[04:09]
(Single voice) Intelligent technology depends on personal data.	(一種聲音) 智能科技仰賴個人數據。[04:12]
(Two overlapping voices talking)	(兩種聲音重疊) 智能科技仰賴個人數據。[04:15]
(Single voice) Intelligent technology depends on personal data.	(一種聲音) 智能科技仰賴個人數據。[04:18]
PC: Your pupil doesn't lie.	你的瞳孔不會說謊。[04:21]
Your eye gives away your poker face.	你的眼睛拆穿了你的撲克臉。[04:22]
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When your brain's having to work harder, your <b>autonomic</b> nervous system drives your pupil to <b>dilate</b> .	當腦袋愈努力地想事情, 自主神經系統驅使瞳孔擴大。[04:25]
<b>neuroscience:</b> n.神经系统科学(指神经病学,神经化学等) <b>drop out:</b> 退出;退学;脱离 <b>overlapping:</b> adj.重叠;覆盖/v.与...重叠;盖过(overlap的ing形式) <b>autonomic:</b> adj.自律的;自治的 <b>dilate:</b> vi.扩大;膨胀;详述/vt.使扩大;使膨胀	

When it's not, it contracts.	在相反的情況下,瞳孔縮小。[04:30]
When I take away one of the voices, the cognitive effort to understand the <b>talkers</b> gets a lot easier.	當只有一種聲音時,理解說話內容需要的精力減少。[04:32]
I could have put the two voices in different <b>spatial</b> locations, I could have made one louder.	我把兩種聲音分別放在兩個地方,如果我將其中一種聲音調大聲,[04:37]
You would have seen the same thing.	出來的效果也是一樣。[04:42]
We might think we have more agency over the reveal of our internal state than that spider, but maybe we don't.	我們可能自認為比蜘蛛有更多自主權 能控制披露自己的內心狀態與否,但或許不如我們所想像的。[04:44]
Today's technology is starting to make it really easy to see the signals and tells that give us away.	現今科技很容易就讀懂 我們內心深處釋出的信號。[04:52]
The <b>amalgamation</b> of <b>sensors paired</b> with machine learning on us, around us and in our environments, is a lot more than cameras and <b>microphones</b> tracking our external actions.	傳感器連同機器學習,與我們、周遭、環境相結合,遠遠不止追蹤我們行動的 相機和麥克風而已。[04:58]
Our bodies <b>radiate</b> our stories from changes in the temperature of our <b>physiology</b> .	我們身體的生理溫度變化 輻射出我們的故事。[05:12]
<b>talkers</b> : n.说话的人;健谈者;空谈者 <b>spatial</b> : adj.空间的;存在于空间的;受空间条件限制的 <b>amalgamation</b> : n.融合;混合;合并;联合;[台]混汞法,汞齐化法 <b>sensors</b> : n.[自]传感器,感应器;感测器(sensor的复数) <b>paired</b> : adj.[计]成对的;配对的/v.使成对;配合(pair的过去分词) <b>microphones</b> : n.[电子]麦克风(microphone的复数) <b>radiate</b> : vt.辐射;传播;流露;发射;广播/vi.辐射;流露;发光;从中心向各方伸展/adj.辐射状的,有射线的 <b>physiology</b> : n.生理学;生理机能	
We can look at these as <b>infrared thermal</b> images showing up behind me, where <b>reds</b> are hotter and <b>blues</b> are cooler.	看看我身後的紅外線溫度圖。紅色代表較高溫,藍色代表低溫。[05:18]
The dynamic signature of our thermal response gives away our changes in stress, how hard our brain is working, whether we're paying attention and <b>engaged in</b> the conversation we might be having and even whether we're experiencing a picture of fire as if it were real.	動態的身體溫度徵象 讓我們對壓力的反應露了餡,我們有多努力用腦想問題,我們和別人聊天時是否專注,甚至我們是否像身歷其境遭火災。甚至我們是否像身歷其境遭火災。[05:24]
We can actually see people <b>give off</b> heat on their cheeks in <b>response to</b> an image of flame.	人們的臉頰真的會散發出熱力 來回應火焰的影像。[05:41]
But <b>aside from</b> giving away our poker bluffs, what if <b>dimensions</b> of data from someone's thermal response gave away a glow of interpersonal interest?	除了假裝冷漠露了餡,如果反應的人體溫度數據 也讓人際關係露了餡呢? [05:47]
Tracking the honesty of feelings in someone's thermal image might be a new part of how we fall in love and see attraction.	用溫度圖追蹤人的真誠感受 可能是部分墜入愛河和偵測吸引力的新穎方式。[05:58]
<b>infrared</b> : n.红外线/adj.红外线的 <b>thermal</b> : adj.热的;热量的;保热的/n.上升的热气流 <b>reds</b> : n.红胶丸(安眠药的俚称);红色的物品(red的复数) <b>blues</b> : n.忧郁布鲁斯歌曲;蓝色物(blue的复数)/v.把...染成蓝色(blue的第三人称单数) <b>engaged in</b> : 从事于;忙于 <b>give off</b> : 发出(光等);长出(枝,杈等) <b>in response to</b> : 响应;回答;对...有反应 <b>aside from</b> : 除...以外 <b>dimensions</b> : n.规模,大小	
Our technology can listen, develop <b>insights</b> and make <b>predictions</b> about our mental and physical health just by analyzing the timing <b>dynamics</b> of our speech and language picked up by microphones.	我們的科技可以聆聽、洞察和預測 我們心理和生理的健康,只需分析麥克風收到的 語言節奏變化。[06:05]
Groups have shown that changes in the <b>statistics</b> of our language paired with machine learning can predict the <b>likelihood</b> someone will develop <b>psychosis</b> .	資料顯示,透過搭配 人們的語言變化數據和機器,可以預測一個人有精神病的可能性。[06:17]
I'm going to take it a step further and look at <b>linguistic</b> changes and changes in our voice that show up with a lot of different conditions.	我將更深入地探討,在不同的情況下,我們語言和聲音上的改變。[06:27]
<b>Dementia, diabetes</b> can alter the <b>spectral coloration</b> of our voice.	老年癡呆和糖尿病 可改變聲音中的光譜顏色。[06:33]
Changes in our language associated with <b>Alzheimer's</b> can sometimes show up more than 10 years before <b>clinical diagnosis</b> .	與阿茲海默症有關的語言變化 能在臨床診斷的前十年就被發現。[06:39]
<b>insights</b> : n.洞察力;眼力;深刻见解(insight的复数) <b>predictions</b> : n.预测,预言(prediction复数形式) <b>dynamics</b> : n.动力学,力学 <b>statistics</b> : n.统计;统计学;[统计]统计资料 <b>likelihood</b> : n.可能性,可能 <b>psychosis</b> : n.精神病;精神错乱 <b>linguistic</b> : adj.语言的;语言学的 <b>Dementia</b> : n.[内科]痴呆 <b>diabetes</b> : n.糖尿病;多尿症 <b>spectral</b> : adj.[光]光谱的;幽灵的;鬼怪的 <b>coloration</b> : n.着色;染色 <b>Alzheimer</b> : n.阿尔茨海默病,老年痴呆症 <b>clinical</b> : adj.临床的; 诊所的 <b>diagnosis</b> : n.诊断	
What we say and how we say it tells a much richer story than we used to think.	我們表達的內容和怎樣表達 比我們想像中透露出更多資訊。[06:47]
And devices we already have in our homes could, if we let them, give us <b>invaluable</b> insight back.	家中已有的儀器,如果我們允許,可以讓它們把珍貴的數據傳送回來。[06:52]
The chemical composition of our breath gives away our	我們呼吸中的化學成分,能透露我們的感覺。



feelings.	[06:59]
There's a dynamic mixture of <b>acetone</b> , <b>isoprene</b> and carbon <b>dioxide</b> that changes when our heart speeds up, when our muscles tense, and all without any obvious change in our behaviors.	由丙酮、異戊二烯和二氧化碳 所組成的混合物成分, 在心跳加速、肌肉緊張時不斷變化。但我們的行為不會有明顯的改變。[07:06]
Alright, I want you to watch this clip with me.	請你們跟我一同看這段影片。[07:18]
Some things might be going on on the side screens, but try and focus on the image in the front and the man at the window.	有些東西可能出現在兩旁的螢幕, 但嘗試把注意力集中在前面的影像, 和窗戶旁的男人。[07:20]
(Eerie music)	(怪異的音樂) [07:31]
(Woman screams) PC: Sorry about that. I needed to get a reaction.	(女人的尖叫) 抱歉讓你們經歷這些, 我需要你們的反應。[07:39]
(Laughter) I'm actually tracking the carbon dioxide you <b>exhale</b> in the room right now.	(笑聲) 我正追蹤你們在這房間 呼出的二氧化碳。[07:52]
We've installed <b>tubes</b> throughout the theater, lower to the ground, because CO2 is heavier than air.	我們在整間講廳安裝了管道, 在地下,[08:01]
<b>invaluable</b> : adj.无价的; 非常贵重的 <b>acetone</b> : n.[有化]丙酮 <b>isoprene</b> : n.[有化]异戊二烯;橡胶基质 <b>dioxide</b> : n.二氧化物 <b>exhale</b> : vt.呼气;发出;发散;使蒸发/vi.呼气;发出;发散 <b>tubes</b> : n.[材]管子,导管;管状虫;伦敦地铁(tube的复数)	
But they're connected to a device in the back that lets us measure, in real time, with high <b>precision</b> , the continuous <b>differential</b> concentration of CO2.	這些管道連接後面的儀器, 可以實時準確地計算 一連串的二氧化碳濃度變化。[08:07]
The clouds on the sides are actually the <b>real-time</b> data <b>visualization</b> of the density of our CO2.	旁邊的雲圖顯示出這裡 二氧化碳濃度。[08:17]
You might still see a patch of red on the screen, because we're showing increases with larger colored clouds, larger colored areas of red.	你可能見到螢幕上有一小塊紅色, 因為它顯示有顏色的雲團增多, 紅色的區域增多。[08:25]
And that's the point where a lot of us jumped.	這正是顯示我們被嚇到的時候。[08:34]
It's our collective <b>suspense</b> driving a change in carbon dioxide.	是我們集體的焦慮 導致二氧化碳變化。[08:37]
Alright, now, watch this with me one more time.	現在再看一次這段影片。[08:43]
(Cheerful music)	(快樂的音樂) [08:46]
(Woman laughs) PC: You knew it was coming.	(女人的笑聲) 你們已經知道會發生什麼事。[08:54]
But it's a lot different when we changed the creator's intent. Changing the music and the sound effects completely alter the <b>emotional</b> impact of that scene.	當我們改變了創作者的意圖, 差別會很大。[09:06] 轉換了音樂和音效 完全改變那場景帶來的情緒影響。[09:10]
<b>precision</b> : n.精度, [数]精密度; 精确/adj.精密的, 精确的 <b>differential</b> : adj.微分的;差别的;特异的/n.微分;差別 <b>real-time</b> : adj.实时的;接到指示立即执行的 <b>visualization</b> : n.形象化;清楚地呈现在心 <b>suspense</b> : n.悬念;悬疑;焦虑;悬而不决 <b>emotional</b> : adj.情绪的; 易激动的; 感动人的	
And we can see it in our breath.	從我們的呼吸可以知道,[09:17]
Suspense, fear, joy all show up as <b>reproducible</b> , <b>visually identifiable</b> moments.	焦慮、恐懼、歡樂, 都顯示可重複性, 視覺上可以辨識的時刻。[09:20]
We broadcast a chemical signature of our emotions.	這些化學特質傳達了我們的情緒。[09:27]
It is the end of the poker face.	撲克臉的時代將就此終結。[09:35]
Our spaces, our technology will know what we're feeling.	我們的空間、科技 將會知道我們的情感。[09:38]
We will know more about each other than we ever have.	我們將前所未有地更了解彼此。[09:42]
We get a chance to reach in and connect to the experience and <b>sentiments</b> that are fundamental to us as humans in our senses, <b>emotionally</b> and socially.	我們有機會在情感上與社交上, 交換那些身為人類基本擁有的經驗與觀點。[09:45]
I believe it is the era of the <b>empath</b> .	我相信這是一個同理心的時代。[09:55]
And we are <b>enabling</b> the capabilities that true technological partners can <b>bring to</b> how we connect with each other and with our technology.	我們正在實現那些能力, 它能夠連結我們彼此,[09:57]
If we recognize the power of becoming technological empathys, we get this opportunity where technology can help us bridge the emotional and cognitive divide.	如果意識到我們能用技術 達到同理心的力量, 我們就掌有機會, 用科技幫助我們跨越 情感和認知的鴻溝。[10:06]
<b>reproducible</b> : adj.可再生的;可繁殖的;可复写的 <b>visually</b> : adv.形象化地;外表上;看得见地 <b>identifiable</b> : adj.可辨認的;可認明的;可证明是同一的 <b>sentiments</b> : 情绪/[心理]感情/感想 <b>emotionally</b> : adv.感情上;情緒上;令人激动地;情緒冲动地 <b>enabling</b> : adj.授权的/v.使能够;授权给(enable的现在分词) <b>bring to</b> : 使恢复知觉;停船	
And in that way, we get to change how we tell our stories.	如此一來,我們就能改變敘事的方法。[10:16]
We can enable a better future for technologies like <b>augmented</b> reality to extend our own agency and connect us	我們能為「擴增實境」等技術 創造更美好的未來, 擴大我們的自主權,[10:19]

at a much deeper level.

Imagine a high school **counselor** being able to realize that an **outwardly cheery** student really was having a deeply hard time, where reaching out can make a **crucial**, positive difference.

Or **authorities**, being able to know the difference between someone having a mental health crisis and a different type of aggression, and responding accordingly.

Or an artist, knowing the direct impact of their work.

Leo **Tolstoy** defined his perspective of art by whether what the creator intended was experienced by the person on the other end.

Today's artists can know what we're feeling.

**augmented**: adj.增广的;增音的;扩张的 **counselor**: n.顾问;法律顾问;参事(等于counsellor) **outwardly**: adv.表面上;向外;外观上地 **cheery**: adj.愉快的,活泼的 **crucial**: adj.重要的;决定性的;定局的;决断的 **authorities**: n.当局,官方(authority的复数) **Tolstoy**: n.托尔斯泰(俄国小说家)

But **regardless of** whether it's art or human connection, today's technologies will know and can know what we're experiencing **on the other side**, and this means we can be closer and more **authentic**.

But I realize a lot of us have a really hard time with the idea of sharing our data, and especially the idea that people know things about us that we didn't actively choose to share.

Anytime we talk to someone, look at someone or choose not to look, data is **exchanged**, given away, that people use to learn, make decisions about their lives and about ours.

I'm not looking to create a world where our inner lives are ripped open and our personal data and our **privacy** given away to people and **entities** where we don't want to see it go.

But I am looking to create a world where we can care about each other more effectively, we can know more about when someone is feeling something that we ought to **pay attention to**.

**regardless of**: 不顾,不管 **on the other side**: 另一面;在另一边 **authentic**: adj.真正的,真实的;可信的 **exchanged**: adj.交换的/v.交换(exchange的过去式) **privacy**: n.隐私;秘密;隐居;隐居处 **entities**: n.实体;存在(entity的复数形式);字符实体 **pay attention to**: 注意;重视

And we can have richer experiences from our technology.

Any technology can be used for good or bad.

**Transparency** to engagement and effective regulation are absolutely critical to building the trust for any of this.

But the benefits that "**empathetic** technology" can bring to our lives are worth solving the problems that make us uncomfortable.

And if we don't, there are too many opportunities and feelings we're going to be missing out on.

Thank you.

(Applause)

**Transparency**: n.透明,透明度;幻灯片;有图案的玻璃 **empathetic**: adj.移情作用的;同感的(等于empathic)

試想像高中的輔導老師 能注意到表面歡樂的學生 其實正經歷著艱難的日子。給予這名學生支持,藉此得到關鍵且正向的結果。[10:27]

或是讓權威人士有能力分辨 一個人是有心理健康障礙 還是具有侵略性,並根據情況作出回應。[10:37]

或者讓藝術工作者 能知曉其作品對人們的影響。[10:47]

列夫·托爾斯泰將藝術定義為 創造者透過作品 把自己的想法傳達給觀賞者。[10:51]

如今藝術工作者能知道我們的感受。[10:59]

但無論是藝術或人際的連結,當今科技將會知道,能夠知道 我們不為人知的經歷。這代表我們之間會更接近、更真誠。[11:02]

但我明白有很多人抗拒 分享與自身相關數據的做法,特別是別人能洞悉 我們不想與之分享的想法。[11:14]

無論何時當我們和人交談、看著別人、或不看時,數據已被交換並傳遞出去。人們利用這些數據了解我們 來藉此做了和我們相關的決定。[11:28]

我不是想創造一個 內心生活要被剖開的世界——把我們的私人數據和隱私 給我們不想給的人看。[11:45]

我想創造一個世界 可以讓我們更有效地關心彼此。當有人需要被關心時,我們可以獲得更多資訊。[11:54]

科技讓我們有更豐富的經驗。[12:06]

任何科技都可用來行善或犯罪。[12:10]

參與的透明度和有效的規範,這兩項要素能幫助科技建立信任。[12:13]

同理心技術帶給生活的好處,值得讓我們解決令人不安的問題。[12:19]

如果我們不解決的話,會有太多的機會和感受 被我們忽略。[12:29]

謝謝! [12:34]

(掌聲) [12:36]

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