

Can AI tell if a teen lies about their age?

The Yoti system is about to be used by Instagram to spot children posing as older teens on the app. Helen Rumbelow tests it out with the British founder



Helen Rumbelow, The Times

When I line up my face in front of the laptop's camera, I can see myself reflected on screen. My expression is curious and shamefully vain. Once the computer is happy it can see the whole of my face, warts (or wrinkles) and all, in a fraction of a second, PING! It spits out its judgment.

The question is simple: how old do I look? The answer is clinical, expressed in years and months. But the process feels mythical: a 21st-century version of the Sorting Hat in Harry Potter. Being modern, it doesn't care about my character. Instead, it addresses the central anxiety of our era: are you young?

This isn't just any old human, squinting an eye at me, fooled by the way I've spackled my crow's feet with make-up, or worse, flattering me by knocking a few years off a real guess. What is scrutinising me is an artificial intelligence system, trained by vast libraries of photos to become far more expert than any person at putting an age to a face.

Over many thousands of failures with distracting lipstick, beards, glasses, different skin tone or lighting, it learnt to be brutally accurate. It sorts the mutton from the lamb with vicious speed: mutton, lamb, mutton, lamb.

This "guess my age" function would be nothing more than a fun party trick if used by adults. OK, scratch that, unleashing this AI on a party of adults would not be fun. It would result in an upsettingly divisive party that would end with surreptitious calls to the Botox clinic from the cab home.

But adults are not the reason this particular piece of artificial intelligence is quite so exciting. This fun party trick is actually revolutionary, tackling the fatal flaw of the internet: too many kids in adult spaces and vice versa. It could save childhood and even save lives. There's a famous New Yorker cartoon of a dog at a computer saying, "On the internet, nobody knows you're a dog." Robin Tombs, CEO of Yoti, whose offices I am now sitting in, adds: "And certainly nobody ages the dog."

- [How easy is it for teens to lie about their age on Instagram?](#)

I have long reported on how children are given the keys to the bar that is the adult online world. Every year that went by it felt as though a kind of powerlessness took hold. David Cameron, then prime minister, thundered about making the internet safer for children in 2013, when my daughter was still in pigtails.

Britain was to be a world pioneer in restricting porn for kids. By 2019, those plans were quietly dropped. It was “difficult to impossible” muttered politicians and tech moguls alike. Adults didn’t want to give away their personal data; internet giants didn’t want to pay for cumbersome checks that would lose them customers.

By this stage I had two young teens online, and I was losing a game of whack-a-mole trying to disable every adult app they downloaded. A nine-year-old could log onto Pornhub, no questions asked. A 70-year-old could pose as 13, no questions asked. Social media, porn, online knife sales, you name it, this generation has suffered the effects of children overdosing on adult vices.

Which is why I am with Tombs in an unremarkable meeting room of Yoti, a British digital company that has its headquarters in London’s financial district. Tombs — since we’re obsessed with age — is 55 and looks like a busy plumber, wearing a Yoti-branded polo shirt with jeans and manoeuvring the laptop with chunky rugby player hands.



Robin Tombs: “Humans are not brilliant at estimated age. Our technology could go through that super fast”

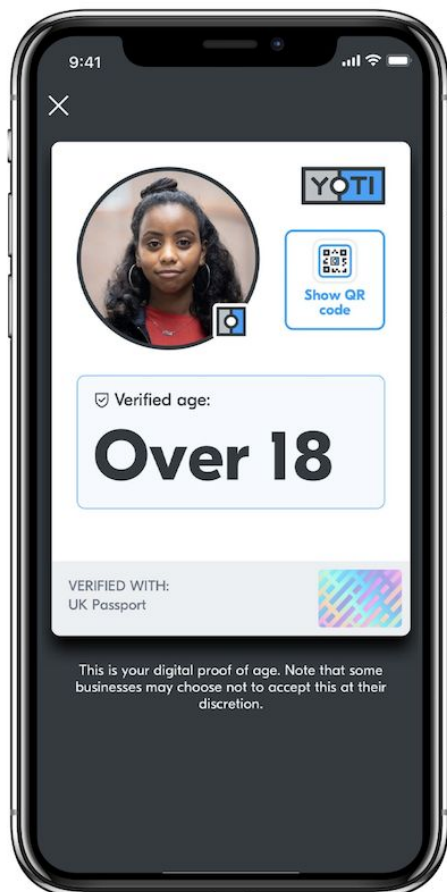
I am struggling to decide what is more remarkable: that someone has changed the game for children online, or that this man and this company are British. Suddenly, the internet giants are at the door of this dad of three from Chelmsford, not a nerdy Silicon Valley wunderkind.

Tombs and his age-guessing AI have worked for OnlyFans, Facebook, Sony PlayStation, TikTok, Aylo (the parent company for Pornhub) and big supermarket self-checkout providers, among many other giant multinationals.

Now Mark Zuckerberg, CEO of Meta, under pressure for years to protect children on Instagram, has chosen Yoti's "facial age estimation" technology to police the new Instagram Teen accounts. Alone, many of these companies account for billions of users; together Yoti's clients have users in the double digits of billions.

Tombs, or rather his Yoti AI system, is about to become the bouncer for the internet, the bot version of a big bloke turning teens away from the door of the nightclub: "Nice try, sonny, but you're too young."

Which is why I have brought my daughter along. As she sits next to me I ask Tombs and his colleague Chris how old they think she looks. Erm, they say, about 16? Then I show them a photo of another girl, the daughter of my colleague on The Times (if this sounds creepy then you haven't spent long enough online). How about her? Maybe 16 too, is the consensus. I agree, and her father says she is mostly mistaken for at least that.



How the Yoti age verification app looks

Two young girls, who both look 16 to adults. My daughter goes first, lining up her ears and her forehead to the frame provided on the laptop screen. Yoti judgment: 17 and three quarters. She is actually 18 and a half. I show a photo of my colleague's daughter to the screen. Yoti judgment: 12 and three quarters. It's off by only a few months; she is on the eve of her 13th birthday.

Later, her father is astonished: Yoti is the only entity his daughter hasn't fooled. "Everyone says she passes for years older," he says. "I'm not saying it restores my faith in tech, but nearly." Next, a school photo of my son. Yoti judgment: 15 and a half. His age at the time was 15 and a half to the month.

Yoti makes its data public, "foolishly or courageously", Tombs says. Its average error in age for 10-17 years old is about one year and falling steadily the more it learns. "We have faced this huge challenge of how old is anybody on the web?" Tombs says. "We think that's been solved."

Yet an awful lot of people don't agree. Melanie Dawes, the chief executive of Ofcom, said in June that age estimation tech doesn't "work very well on children because children can look so different at different ages". Tombs found this comment frustrating.

"We have been trying to explain it to people for two or three years," Tombs says. "I'm guessing if we were a San Francisco venture capital-backed business, that message would've got out quicker and more effectively. But we're a British company, it takes longer, but we will get there. You can't buck science."

- [How will Australia's social media ban for children work?](#)

He counters that his tech actually works far better on children than adults, partly because that is where most of their work is focused. And partly because — he says delicately — old people's hard living makes them go to seed in divergent ways the computers struggle to understand. He claims that Yoti's success rate of catching teenagers as being under 21, or children being under 13, is more than 99 per cent.

"Some 55-year-olds look very different to other 55-year-olds, if you've been overdoing it. But teenagers are likely to look quite similar. Even though we humans don't think that, it is just vastly more capable than us of working it out."

Tombs isn't a Zuckerberg. He studied economics at Bristol University and spent a few years at PriceWaterhouseCoopers as an accountant before embarking on a series of start-ups in the early online gaming industry, including one of his big sellers, online bingo.

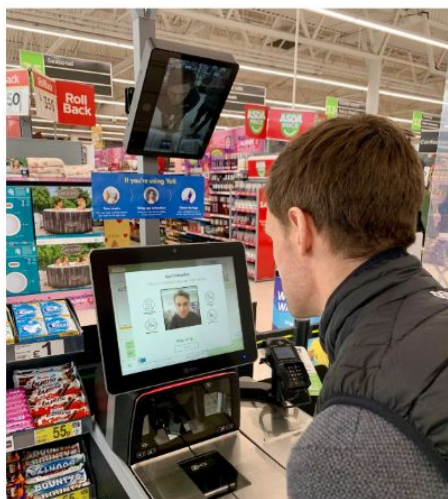
These online games quickly attracted internet fraudsters, and Tombs was prescient in predicting that the slipperiness of online identity would become an increasing threat. He saw for himself how his children, now 21, 19 and 17, were little policed, and social media for kids has only boomed since then.

“If you're 50 and you pretend you're 18, and you're 10 and you pretend you're 18, suddenly you're chatting to each other as if you're both the same age,” he said. “And I would be a lot more worried now if they were 10, 11, 12 and lying about their ages and trying to work out whether as a parent I can stop that.”

In 2014 his company created an app that required passport verification and was used by millions. Soon, they realised that they were sitting on a unique opportunity to train AI in facial age estimation. They say they always ask their customers for consent to use their faces in training: the company is a B-Corp, which means its work must meet high ethical standards.

The creators of the AI are not even sure how it judges age, just that it keeps getting better. It is important to note that facial age estimation is different from “facial recognition”. The AI system discards the image as soon as it has checked it; the image is not stored. It is the equivalent of a human glancing at a face, rather than retaining a passport.

Yoti launched its facial estimation system in December 2018: Tombs says he believes it was the first commercial operation and he believes it is now the largest. Within months it landed its first big contract: Yubo, the French social media company with 60 million users.



Yoti's age-guessing AI has also worked for big supermarket self-checkout providers
YOTI

Instagram Teen will work in a similar way. The social media company, not Yoti, has a variety of ways it raises the alert when it believes someone is lying about their age. It could be the way they look, their peers, or the fairly obvious moment when friends wish you “Happy 14th!” when you claim to be 18. Then they are given the option of verifying with a reliable ID or choosing facial age estimation. Most, Tombs says, choose the latter. If they think the AI has, as for my daughter, wrongly thought them under-age, they can always recourse to the former.

You’ll probably already be thinking of ways teens can cheat. In the demo version I used of Yoti, it was possible to use photographs. But this is not true for the working version, which checks for “liveness”, the micro-expressions in a face that prove it is not a 2D image.

This also detects masks. On Yubo, Tombs says, the “most obvious” hack teens tried was getting an older sibling to stand in for them for the Yoti check. But “every time you got into a video chat, it would take another picture of you. And we would age estimate it immediately.”

Many teens buy alcohol, cigarettes and knives with fake IDs. Facial age estimation could add another level of security here, as well as at the door of clubs and bars. Likewise, the porn industry has struggled to age verify, because adults panic when asked to volunteer their personal data. Age estimation does not need to know names, only a glance at a face. Could age estimation one day trawl through the millions of porn videos checking for the illegal use of children?

“That could be done now,” Tombs says. “At the moment there’s only a certain amount that moderators can do. Humans are not brilliant at estimated age. Our technology could go through that super fast.”

We sit for a moment contemplating a brave new world in which children are children again. “This is hugely disruptive,” Tombs says.

And while facial age estimation has its detractors, when it knocked six years off my real age, and made me 46, I instantly became a lifelong fan.