#share2protect campaign FAQ’s

Improving age estimation technology to keep kids safer online
What is Yoti

Yoti is a global digital identity platform focused on changing the way we prove our identity. In working to give individuals a safe way to prove who they are online and in person, Yoti has developed revolutionary age-estimation technology that can protect teens and adults online.

Supported by the UK’s Information Commissioner’s Office, a campaign has been launched to broaden the use of this world-first technology to under 13’s, with the aim of better protecting children online.
What is the #share2protect campaign?

February 9 2021, being Safer Internet Day, saw the launch of a worldwide campaign to gather more than 50,000 anonymous photos of children between the ages of 5 and 13, in order to increase the accuracy of Yoti’s existing age-estimation technology. Yoti partnered with South African digital wellness company, Be in Touch, in an appeal to parents and legal guardians to play a vital part of this world-first project, tagged #share2protect.

Supported by the UK’s Information Commissioner’s Office, the photo-based age-estimation technology is a ground-breaking alternative to the most common means of online access control for kids which is just an unverified date of birth or a tick box.

Once the Artificial Intelligence platform on which this age-estimation technology is based, is trained to accurately identify the ages of under 13’s, the technology can be made available for integration into adult websites as well as game and social media apps - especially those posing a high risk of predators, sexual content, violence, self-harm and suicide, cyberbullying, drugs and alcohol.
What does Yoti’s technology entail?

Yoti age estimation gives everyone a secure, privacy-preserving way of proving their age. It’s great for kids because you don’t need an ID document and no personal details are shared. All you do is –

- Look into a camera;
- Your face is scanned and your age is estimated in seconds;
- You either pass or fail an age threshold, such as 18+ or under 13;
- Your image is permanently deleted.

It’s easy! Is this facial recognition? No, it does not match faces to a database. It will never recognise you as an individual, just estimate your age.

All images and age information are stored securely in a Research & Development server, which is only accessible to the Yoti R&D team involved in developing and improving the age estimation technology. The information is kept for just as long as the system needs it.

How does Yoti’s technology work?

Yoti has developed a neural network that is trained to estimate ages using a machine-learning AI. Verified information is inputted in the form of a photo along with the person’s month and year of birth. The AI system breaks these verified data points into code and builds up a complex equation to analyse them and in the process, it keeps on learning.

So, if it sees your face, it performs a ‘facial analysis’ by converting your image into code and then determines your age using its age estimating equation. It’s not personal, it’s maths!

To overcome bias, Yoti has gone to great lengths to ensure this works fairly for everyone - delivering leading accuracy for all skin tones, genders and ages.

The mean average error for people aged 13-15 is just 1.5 years. Therefore, a 17-year-old shouldn’t pass for 15, and would be prevented from entering a forum with a threshold set for under 13’s.
Why does Yoti need your help?

To date, Yoti has trained the AI system on images of people 13 years and upwards. But there is a huge need for it to work just as well for those under 13. This will bring greater protection for kids and counter excuses that reluctant platforms make today - that age estimation doesn't work for kids.

To train the AI system, 50,000 photos of kids in the 5-13 age group need to be uploaded by parents or guardians. It takes just a couple of minutes in the 3-step process shown below, and only the age of the children is required, not their identity or location. An option to provide an email address is given, to provide the parent or guardian with a link to use in the unlikely event that they wish to reverse their approval to upload their child’s photo into the AI system.

What do I need to do to help?

The #share2protect campaign involves a simple 3-step process for parents or guardians:

1. Agree to be age estimated to prove you are an adult aged over 21.
2. Agree to provide your child’s photo and date of birth and upload it.
3. Provide an optional email address.
What happens to the photos -

When they are uploaded?

The images form part of the Yoti R&D database and are used to build the age estimation technology using facial analysis. This uses just a face (not linked to any name) and a month and year of birth. No other details of the child are collected. So, there is no recognition of any person.

This type of technology can then be used to help law enforcement to ascertain ages of victims and perpetrators in child abuse images, can protect the access of young people to age-inappropriate websites and enable age gating eg restrict access of under 13, 13+ or 18+ on websites.

While they are being used?

Whilst the images are being used, they are part of the training R&D database as above. This work is being conducted in conjunction with the UK Information Commissioner's Office (ICO) as below.

This ICO Sandbox partnership will offer age-appropriate child-centred content moderation, together with privacy information and accessible parental consent options at a global scale. Yoti’s identity platform, GoBubble’s child-content moderation SaaS (GoBubbleWrap) and others will:

- extend Yoti age estimation for under 13 year olds without ID documents, where their face is analysed and the image instantly deleted.
- use this technology to launch an age verified, content moderated esports membership platform for under 18s with parental consent options, including the use of age estimation for parental consent.

The partnership will offer customisable solutions to help other platforms and content communities meet regulatory requirements to protect children from unwanted intrusions, inappropriate content and minimise the risk of grooming - offered on a software as a service basis.
When they are deleted?

There is a clear image deletion policy, as to when the images are deleted. Yoti keeps the information for as long as is relevant for this project with a maximum retention period of three years. Once images are deleted, they are no longer accessible for any further R&D.

How are the photos protected in the system?

There is full disk encryption that protects the R&D server.

Can the photos be hacked or used in any other way?

Yoti’s R&D server is access restricted and is only available to the Yoti R&D team and architecture team. The R&D infrastructure is housed within our UK-based Tier 3 datacentre production environment. Remote access is controlled by VPN (with 2-factor authentication) to members of the R&D and Infrastructure teams. Direct access is enabled using SSH key authentication. The server infrastructure is built using Linux, and Yoti has a 24/7 Network Operations Centre that is responsible for monitoring and patching systems.

There is little interest in innocuous, anonymous images of faces, as there is no identification linked to a specific face. The face is not linked to a full body image. Whilst there could be market interest in full body photos or nude images, there is little to no value or currency to a hacker in images of just faces, without name or rest of body. Facial images are easily available on social media.

Is there any way that identities and/or locations of parents or children can be tracked?

No location data or identification data is submitted by the parent, only an image, month and year of birth of the child. So, there is no identification or location that can be tracked, as that data is not provided.
What is Yoti’s relationship with the UK government?

Yoti is independently funded, however Yoti technology is used by various government funded bodies e.g. the UK NHS, the digital arm of Scottish Government for citizen access, the States of Jersey for citizen access.

In addition, Yoti –

- has been selected as the strategic partner of the UK Post Office for digital identity, which is government funded;
- has been assessed by UK regulators eg the Home Office, which is now using Yoti age-estimation technology for review of child sexual abuse material images;
- is part of the Home Office sandbox for age verification of age-restricted goods in UK retail stores and its technology has been independently assessed by a Home Office approved audit body;
- is part of the UK Information Commissioner’s Office Sandbox ahead of the Age Appropriate Design Code;
- was reviewed by the audit body nominated by the BBFC for the Digital Economy Act;
- is the sponsor of the All Party Parliamentary Group for Digital Identity.

Is the #share2protect campaign government funded?

The #share2protect campaign is part of Yoti’s work within the ICO Sandbox, ahead of the upcoming Age Appropriate Design Code, for which it does not receive government funding.

This project is aimed at enabling content platforms to treat young people in an age-appropriate fashion, and deter online grooming.
Could the technology be used as a tool for nefarious government policy?

Age estimation via facial analysis is an approach to estimate age only, built from anonymised images, with a month and year of birth. There is no recognition of an individual's identity, when an age is assessed. The name or location of the individual cannot be determined using age estimation. Age estimation technology can be integrated and used by commercial sites to support triage of users e.g. 13+ or 18+.

The only (positive) governmental use case to date, is the review of child sexual abuse material, to ascertain ages of victims and perpetrators. To this end, Yoti has been invited to join the WePROTECT Global Alliance.

Is there a legitimate, defendable public interest component to this project?

The key public interest is to improve age gating, putting up better “digital fences”, to make going online safer for kids and to deter online grooming of young people.

Lorin LaFave, Founder Breck Foundation, “Keeping children safer online is a collective priority for all of us, from the developing tech solutions to the education of children, parents and schools. By parents safely sharing their children’s photos today for Yoti to create better age verification techniques, children will have a safer and healthier online future.”

Tink Palmer, MBE CEO Marie Collins Foundation, said “The Marie Collins Foundation fully endorses the #share2protect campaign. We work with the victims of online abuse and know the harm caused to children and young people. This initiative by Yoti needs to receive the full support of parents wherever they live in the world.”

John Carr, Online Safety Expert, “We need tech solutions which enable people of all ages to be able to prove their age safely, not just people with ID documents. This work through the ICO Sandbox could support many platforms to meet their obligations.”
Will the project, training of the AI and roll out of the technology be undertaken strictly within UNICEF principles?

Yoti is undertaking this work within the Sandbox of the UK Information Commissioner’s Office, which is the supervisory body. In addition, Yoti has a set of Guardians from the realms of online safety, consumer rights, human rights, last mile technology who also hold Yoti to account. Yoti is a founding UK BCorporation.

Yoti is following the principles laid down by the Unicef Policy Guidelines on AI for Children, specifically in terms of devising explainable materials for young people, parents and educators.

Here is a roundup of some of the education materials, aimed at 10+

- **Education Videos to explain the technology behind AI - specifically 'deep learning' and how it's used to estimate age and create safe spaces online.** [Part 1 Part 2]
- **Interactive demo** to try it out & have your age estimated in just a few seconds
- **Video about anti-spoofing and teens putting anti-spoofing to the test**
- Videos showing age estimation in use with students and in retail
- **Interactive Game** - pit yourself against the computer!
  **Username:** yotiGame  **Password:** GuessTheirAge
  You will be shown up to 20 images. You make your estimate of how old each person is. At the end you will get your results versus the computer. To see the actual age and how close you were - hover over the image with your cursor. NB This game is designed for desktop use
- Our latest white paper executive summary of age estimation using facial analysis
- Lighthearted video with serious message of know who you are meeting online - Little Casanova
- We can also provide a lesson plan and student quiz sheet for teachers

Regulators may be interested in

- **ACCS** third-party review of the accuracy of the technology
- IEEE Expert, Keele University, Dr Allison Gardner's review of the accuracy and bias mitigation of Yoti's age estimation technology