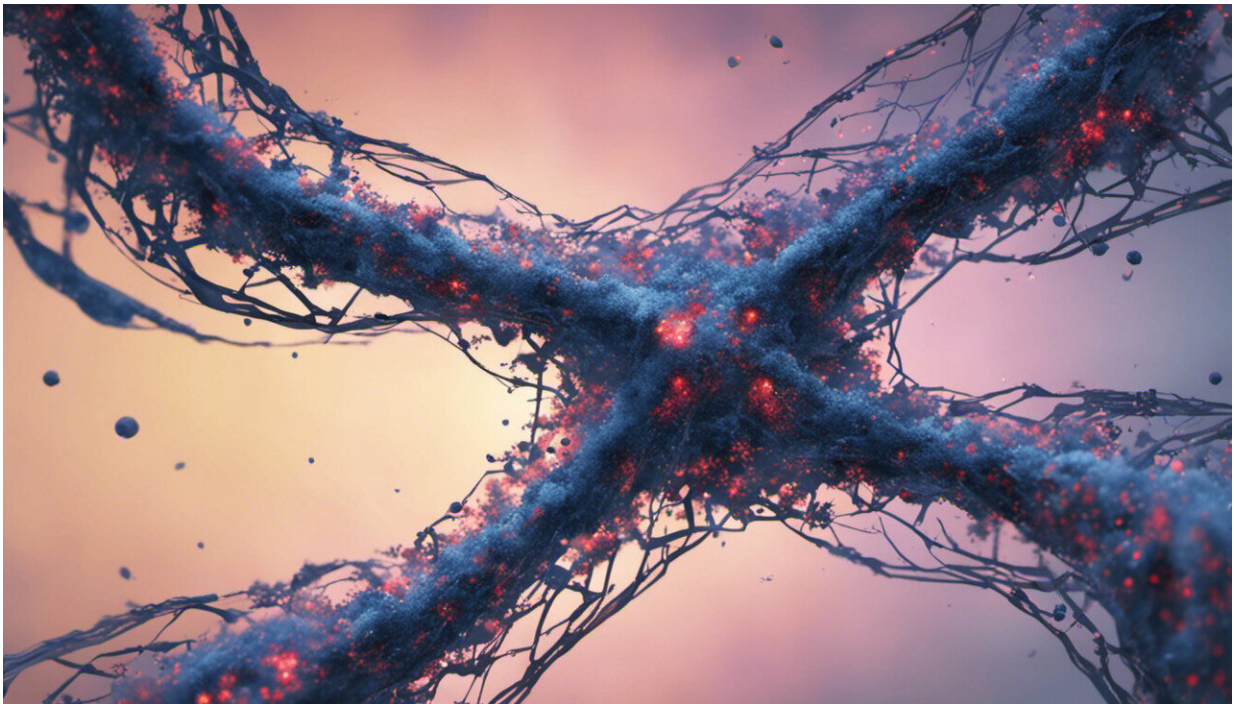


AI is increasingly being used to identify emotions: What's at stake?

April 16 2021, by Alexa Hagerty and Alexandra Albert



Credit: AI-generated image ([disclaimer](#))

Imagine you are in a job interview. As you answer the recruiter's questions, an artificial intelligence (AI) system [scans your face](#), scoring you for [nervousness](#), [empathy](#) and [dependability](#). It may sound like science fiction, but these systems are increasingly used, [often without people's knowledge](#) or consent.

Emotion recognition technology (ERT) is in fact a burgeoning [multi-billion-dollar industry](#) that aims to use AI to detect emotions from [facial expressions](#). Yet the science behind emotion recognition systems [is controversial](#): there are biases built into the systems.

Many companies use ERT [to test customer reactions](#) to their products, from cereal to video games. But it can also be used in situations with much [higher stakes](#), such as in [hiring](#), by [airport security](#) to flag faces as revealing deception or fear, in border control, in [policing](#) to identify "dangerous people" or in [education](#) to monitor students' engagement with their homework.

Shaky scientific ground

Fortunately, [facial recognition technology](#) is receiving public attention. The award-winning film Coded Bias, recently released on Netflix, documents the discovery that many facial recognition technologies do not accurately detect darker-skinned faces. And the research team managing ImageNet, one of the largest and most important datasets used to train facial recognition, was recently forced to blur 1.5 million images [in response to privacy concerns](#).

Revelations about algorithmic bias and discriminatory datasets in facial recognition technology have led large technology companies, including Microsoft, Amazon and IBM, to halt sales. And the technology [faces legal challenges](#) regarding its use in policing in the UK. In the EU, a coalition of more than 40 civil society organizations have [called for a ban](#) on facial recognition technology entirely.

Like other forms of facial recognition, ERT raises questions about bias, privacy and mass surveillance. But ERT raises another concern: the science of emotion behind it is controversial. Most ERT is based on the [theory of "basic emotions"](#) which holds that emotions are biologically

hard-wired and expressed in the same way by people everywhere.

This is increasingly being challenged, however. Research in anthropology shows that emotions [are expressed differently](#) across cultures and societies. In 2019, the [Association for Psychological Science](#) conducted a review of the evidence, concluding that [there is no scientific support](#) for the common assumption that a person's [emotional](#) state can be readily inferred from their facial movements. In short, ERT is built on shaky scientific ground.

Also, like other forms of facial recognition technology, ERT is encoded with racial bias. A study has shown that systems consistently read black people's faces as angrier than white people's faces, regardless of the person's expression. Although [the study of racial bias](#) in ERT is small, racial bias in other forms of facial recognition is well-documented.

There are two ways that this technology can hurt people, says AI researcher Deborah Raji [in an interview with MIT Technology Review](#): "One way is by not working: by virtue of having higher error rates for people of color, it puts them at greater risk. The second situation is when it does work—where you have the perfect facial recognition system, but it's easily weaponized against communities to harass them."

So even if facial recognition technology can be de-biased and accurate for all people, it still may not be fair or just. We see these [disparate effects](#) when facial recognition technology is used in policing and judicial systems that are already discriminatory and harmful to people of color. Technologies can be dangerous when they don't work as they should. And they can also be dangerous when they work perfectly in an imperfect world.

The challenges raised by [facial recognition](#) technologies—including ERT—do not have easy or clear answers. Solving the problems

presented by ERT requires moving from AI ethics centered on abstract principles to AI ethics centered on [practice](#) and [effects](#) on people's lives.

When it comes to ERT, we need to collectively examine the controversial science of emotion built into these systems and analyze their potential for [racial bias](#). And we need to ask ourselves: even if ERT could be engineered to accurately read everyone's inner feelings, do we want such intimate surveillance in our lives? These are questions that require everyone's deliberation, input and action.

Citizen science project

ERT has the potential to affect the lives of millions of people, yet there has been [little public deliberation](#) about how—and if—[it should be used](#). This is why we have developed [a citizen science project](#).

On our [interactive website](#) (which works best on a laptop, not a phone) you can try out a private and secure ERT for yourself, to see how it scans your face and interprets your emotions. You can also play games comparing human versus AI skills in emotion [recognition](#) and learn about the controversial science of emotion behind ERT.

Most importantly, you can contribute your perspectives and ideas to generate new knowledge about the potential impacts of ERT. As the computer scientist and digital activist [Joy Buolamwini](#) [says](#): "If you have a face, you have a place in the conversation."

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