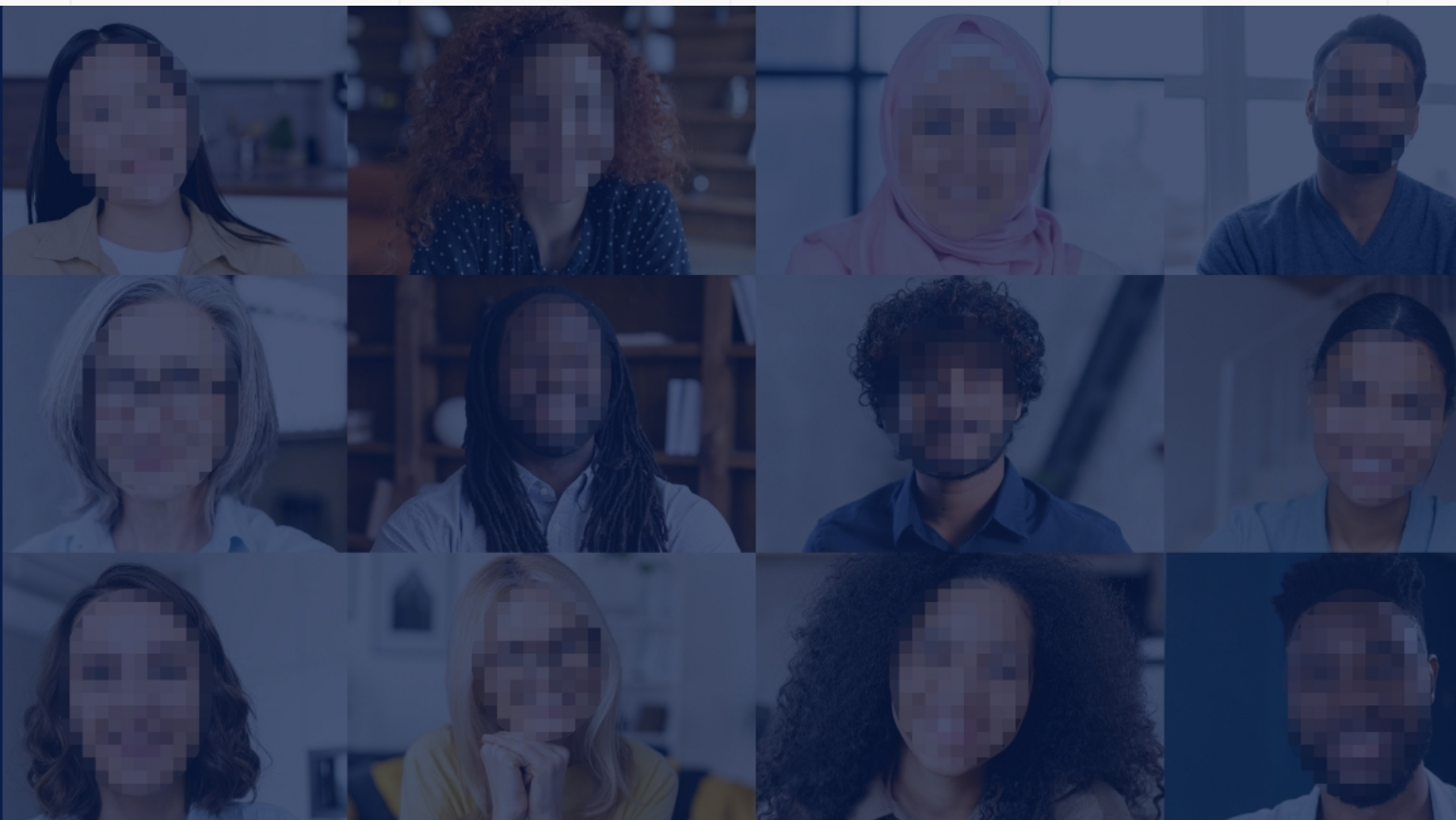


# HOW TRULEO ACHIEVES **UNBIASED** ANALYSIS



# What is **bias** in AI?

Humans often have trouble understanding unfamiliar accents and therefore have **bias**. In numbers, this translates to humans misunderstanding **5%-15%** of another person's speech simply because they are unfamiliar, which results in **bias**.



**Machines have the ability to learn from a variety of accents**, but many speech technologies have not been trained on diverse data and therefore exhibit bias. When bias is present in AI, voice recognition systems exhibit higher error rates when transcribing voices of speakers that fall in less common categories (age, gender, race). For a model to be unbiased, there must be no significant differences (less than 5% variance) between accuracy of transcription based on voice characteristics.

In two recent studies\*, widely used speech recognition systems were shown to be significantly less likely to understand non-native accents than those of native-born users, largely due to lack of diverse training data. The error rate disparity can pose many implications if not mitigated.

## Why is **bias** in AI problematic?

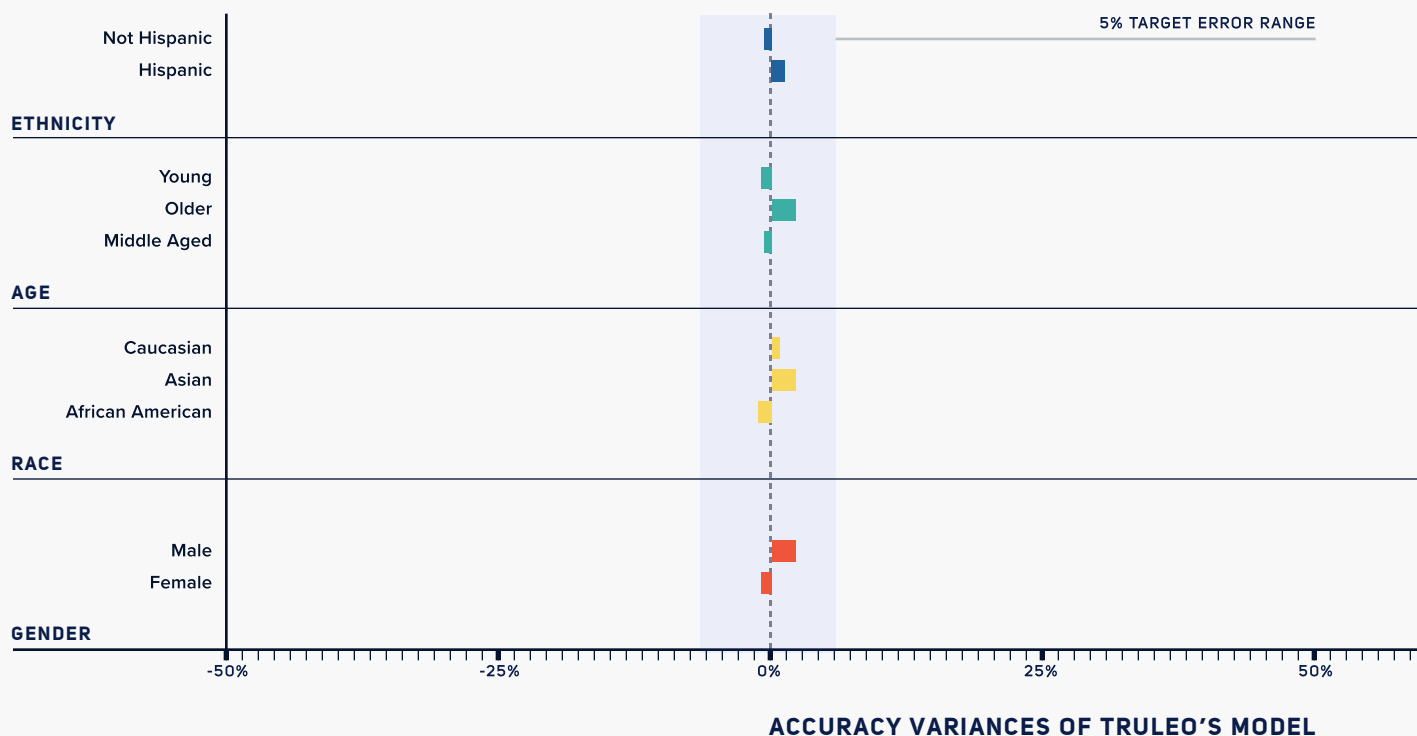
Bias in AI can have many consequences. In public safety in particular, bias can result in inconsistent and unfair evaluations of officers and civilians based on their race, gender or age. Speakers of non-caucasian races can be deemed less respectful or less compliant simply due to increased error in voice recognition.

***Truleo's model exhibits no significant gender, racial, or age bias.***

Unlike many widely used speech recognition systems, Truleo's model does not exhibit bias. By training our model specifically on a diverse set of real world BWC scenarios inclusive of a range of accents, genres and ages, we are able to support and understand 220+ English accents. This minimizes the bias in our model to a level lower than even humans typically have.

### Why is bias in AI problematic? (cont.)

As shown in the graph below, all accuracy differences between potential bias groups in our model are less than 5% and therefore proves that no bias is present when we analyze audio across a diverse set of speaker groups.



## Maintaining unbiased analysis with transcription-only

We're often asked if Truleo analyzes anything besides transcribed words - such as sarcasm, tone, volume, cadence, etc. While these attributes are possible to measure with our models, they can be subjective in nature. The fact that we can demonstrate unbiased analysis with Truleo's transcription model means we can ensure the rest of Truleo's analysis is unbiased as well, which would not be the case if other audio metrics played a role.

## What is Truleo?

Truleo analyzes police body camera videos using artificial intelligence to help promote police professionalism. Truleo worked with FBI National Academy alumni to build the models that deconstruct language used during events to help agencies promote best practices, train new officers, and mitigate risk. To learn more about Truleo's mission to improve trust in the police with body camera analytics, visit [www.truleo.co](http://www.truleo.co).


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