

Emotion-reading tech fails the racial bias test

The Conversation, [Lauren Rhue](#), January 3, 2019 6.23am

Goal of the Study:

Evaluate potential racial bias of AI systems that recognize emotions by analyzing facial expressions in images

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Commercial AI Systems tested:

Face++: <https://www.faceplusplus.com>

Microsoft Face API:

<https://azure.microsoft.com/en-us/services/cognitive-services/face>

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Study data:

- Professional photos of 400 basketball players from the 2016 to 2017 NBA season
- Players appear similar in their clothing, athleticism, and age
- Players look at the camera in the picture

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Example of study data:

Darren Collison and
Gordon Hayward

Face++ detects:

Both players are smiling.
Similar smile scores: 48.7
and 48.1 out of 100



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	Darren	Gordon
Smile Scores:	48.7	48.1
Emotions		
Happy	39	60
Angry	27	0.1



Face++

Face++ rated the emotions on facial expressions of basketball players out of 100. Black faces were, on average, rated as angrier and unhappier than white faces.

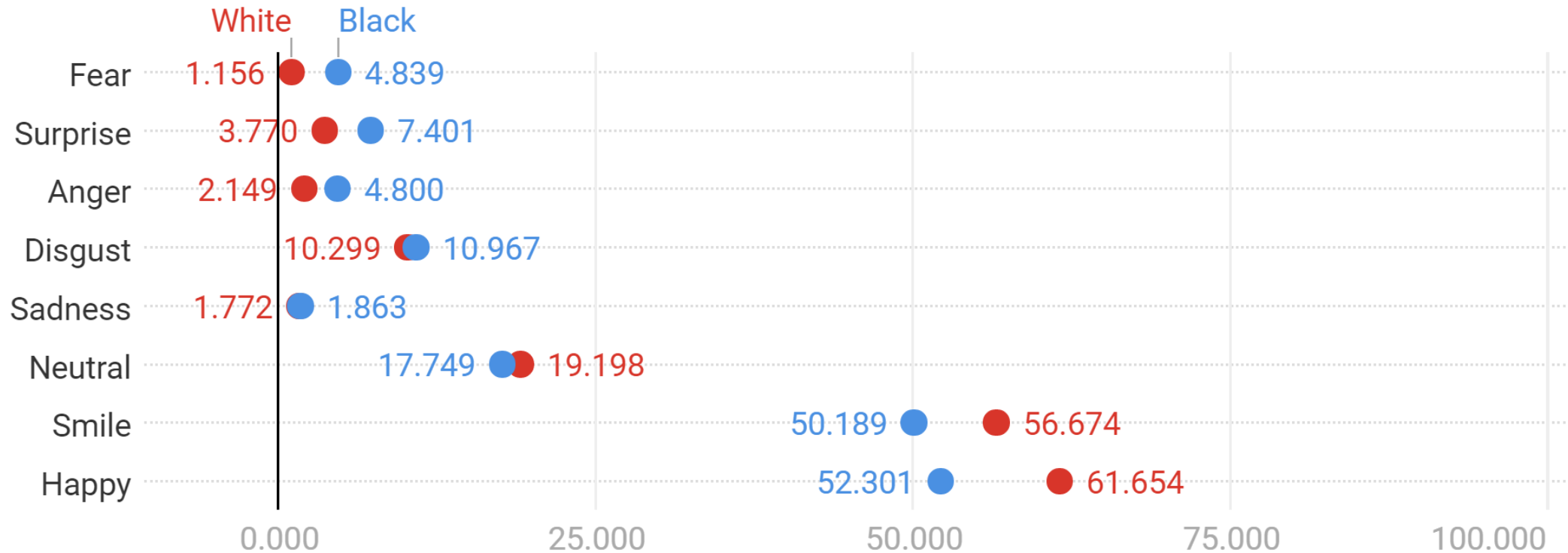


Chart: The Conversation, CC-BY-ND • Source: [SSRN \(2018\)](#) • [Get the data](#)

Face API

Face API rated the emotions on facial expressions of basketball players out of 100. White faces were seen, on average, as happier than black faces.

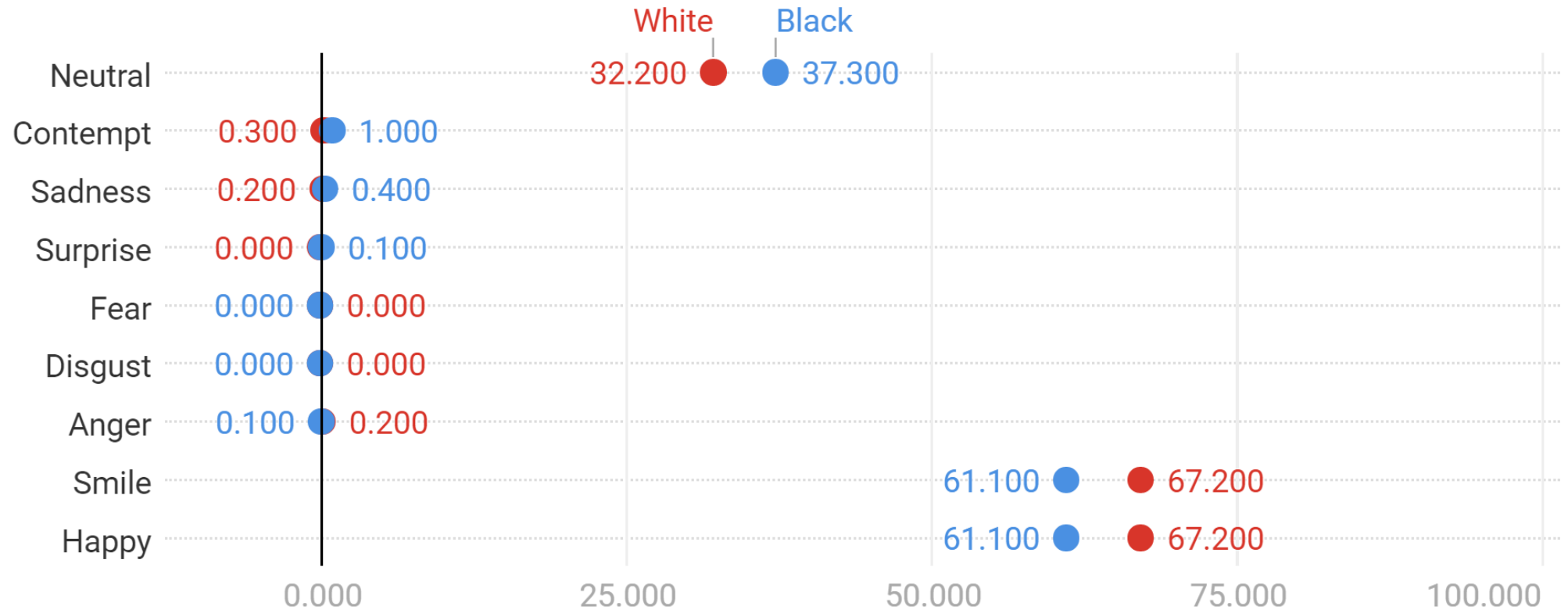


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Lauren Rhue's Analysis of her Study Results:

- Some research suggests that black professionals must amplify positive emotions to receive parity in their workplace performance evaluations.
- Some researchers argue that facial recognition technology is more objective than humans.
- Rhue's study suggests that facial recognition reflects the same biases that people have.
- Black men's facial expressions are scored with emotions associated with threatening behaviors more often than white men, even when they are smiling.
- The use of facial-analysis systems could formalize preexisting stereotypes into widely-used AI, automatically embedding them into everyday life.

Lauren Rhue's Analysis of her Study Results:

Applications of commercial face analysis systems:

- Help companies with interviewing and hiring decisions.
- Scan faces in crowds to identify threats to public safety.

Until AI systems assess black and white faces similarly, black people may need to exaggerate their positive facial expressions – essentially smile more – to reduce ambiguity and potentially negative interpretations by the technology.

Lauren Rhue's Analysis of her Study Results:

Although innovative, artificial intelligence can perpetrate and exacerbate existing power dynamics, leading to disparate impact across racial/ethnic groups.

Some societal accountability is necessary to ensure fairness to all groups because facial recognition, like most artificial intelligence, is often invisible to the people most affected by its decisions.