The Effects of Facial Recognition on the Risks of Increase in False Arrests

Presented by Eric Sledge

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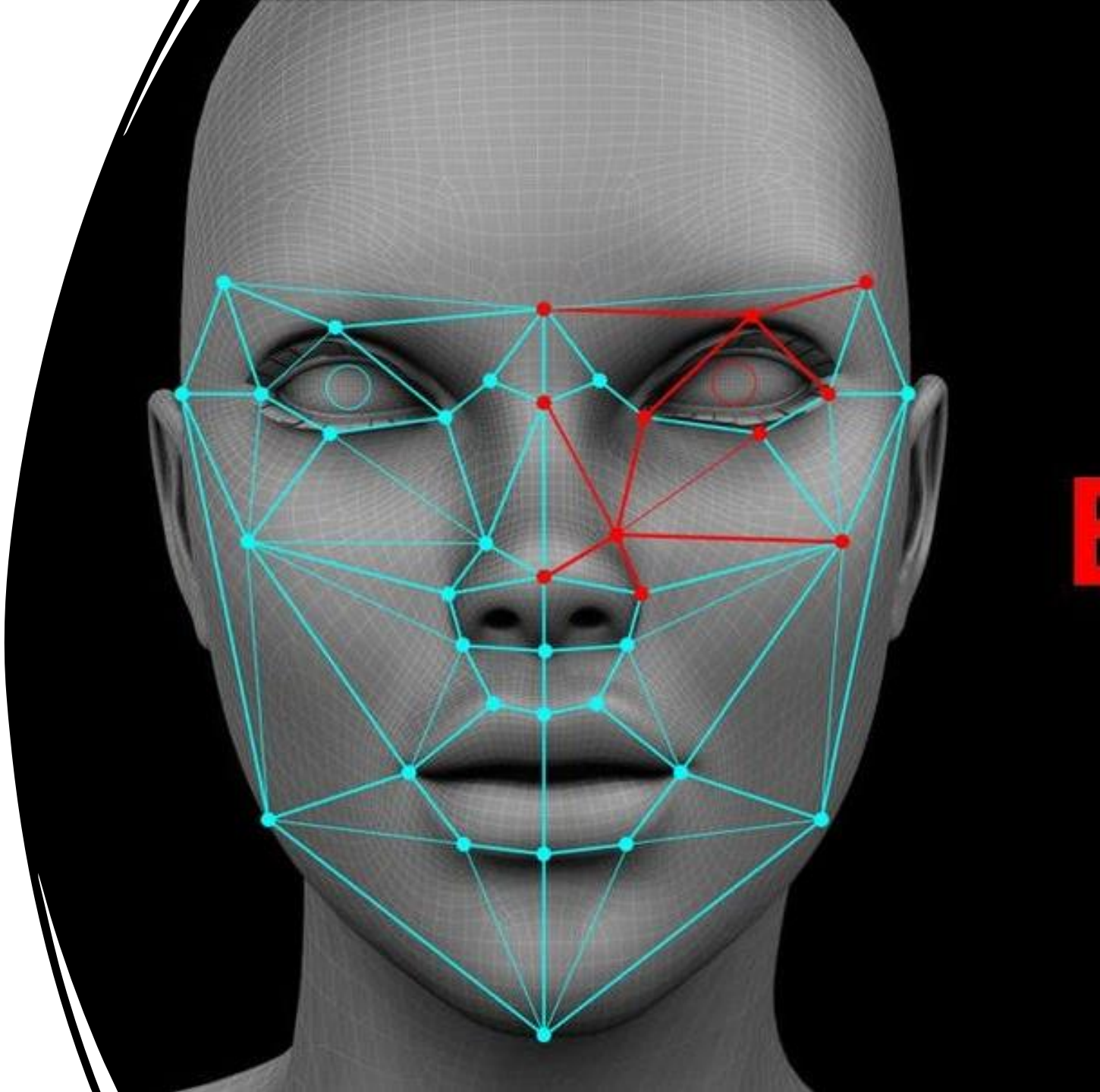
Abstract

- Does the use of face recognition technology by law enforcement in conjunction with eyewitness identifications lead to more erroneous convictions under American criminal law? This article examines this important question and suggests that the response might be affirmative. In order to create investigation leads that are then given to eyewitnesses for positive identification, law enforcement agencies routinely use facial recognition technology. However, false eyewitness testimony is the leading factor in wrongful convictions, and using facial recognition to generate investigative leads may foster false eyewitness identifications. Because face recognition technology is designed to search a large database of faces for lookalikes, an innocent lookalike may resemble a suspect so closely that police may mistakenly select that person as an investigative lead, and an eyewitness may be unable to distinguish between the lookalike and the actual suspect. This article investigates this potential issue and makes policy recommendations to help address it.

Keywords

- Face recognition, policing, wrongful convictions, criminal justice, privacy, criminal law, eyewitness identification



Keywords Definitions

Facial Recognition - the process of identifying or verifying the identity of a person using their face.

Policing - the activities carried out by police officers to preserve law and order. The policing of public places. Or the actions of a person or group in authority to ensure fairness and legality in an area of public life.

Keywords Definitions

Wrongful Conviction - A conviction may be classified as wrongful for two reasons: The person convicted is factually innocent of the charges. There were procedural errors that violated the convicted person's rights.

Criminal Justice - Criminal justice is an umbrella term that refers to the laws, procedures, institutions, and policies at play before, during, and after the commission of a crime.

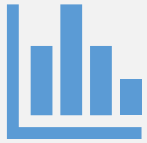
Keywords Definitions

Privacy - Broadly speaking, privacy is the right to be let alone, or freedom from interference or intrusion. Information privacy is the right to have some control over how your personal information is collected and used.

Criminal Law - Criminal law, as distinguished from civil law, is a system of laws concerned with crimes and the punishment of individuals who commit crimes.

Eyewitness Identification - There are three primary forms of eyewitness identification: **lineup, showup, and photographic identification**. These typically are used in combination with one another and with scientific identifications.

Method



The research method: Qualitative.

Research Tool: Semi-structured interviews using an open-ended questionnaire.

Sample and Subject Matter Experts

- I interviewed two police officers in the community that have experience using facial recognition and arrests.

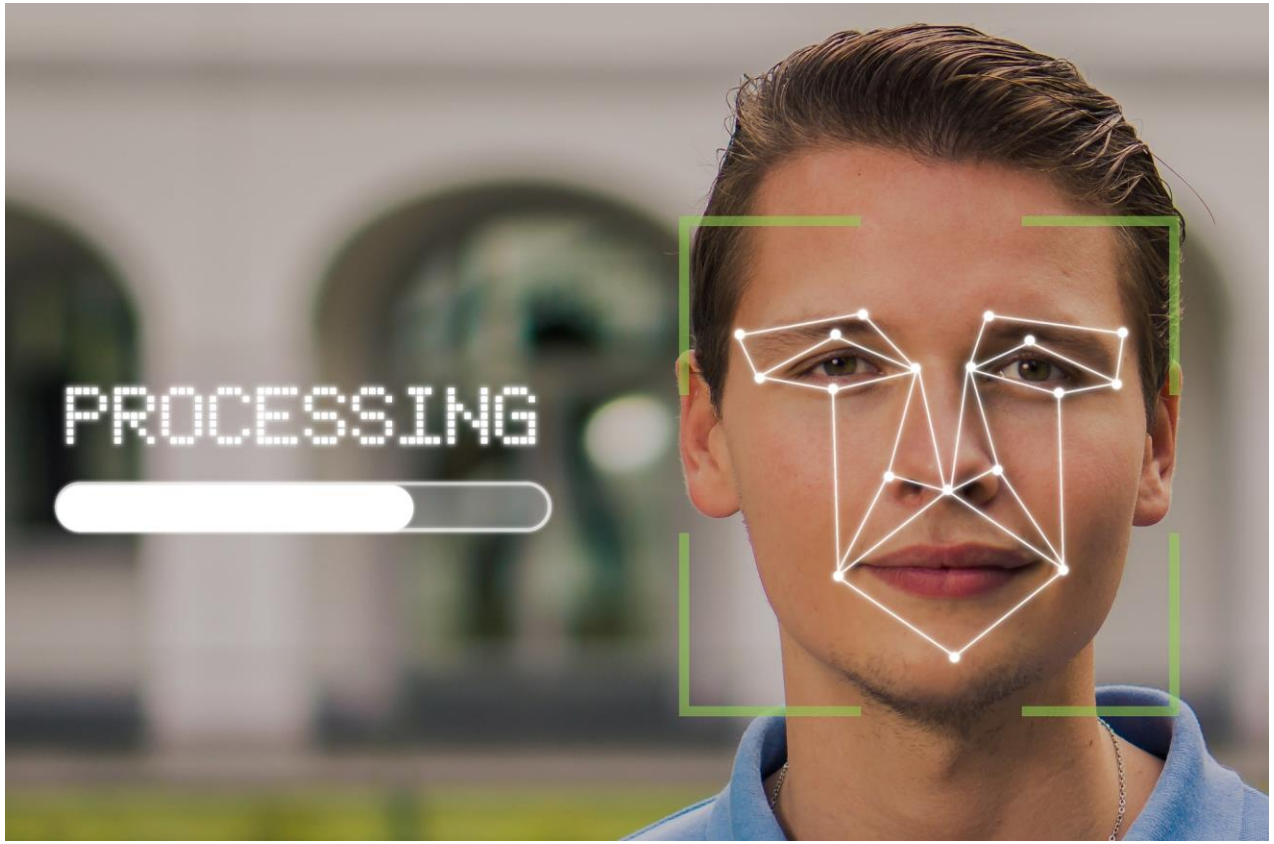
- I will use them in a semi-structured interview as well as an open-ended questionnaire to gain knowledge on the topic of facial recognition related to false arrests and whether facial recognition has a negative effect on racial discrimination, invasion of privacy, and other issues related to the topic.

Objective

My objective is to see what effects facial recognition has on the risks of increases in false arrests in the country and the impact it has on society today.

Interview Questions

- Is facial recognition racially biased?
- Does the use of facial recognition increase the risk of false arrest?
- Is facial recognition accurate enough for law enforcement use?
- Are there risks in using facial recognition technology for travel?



Intro

There are 4 ways that facial recognition can influence the risk of false arrests

1. People can get wrongly identified, arrested, and convicted, often without ever being told they were ID'd by a computer.
2. Invasion of Privacy
3. Low accuracy
4. Racial Discrimination

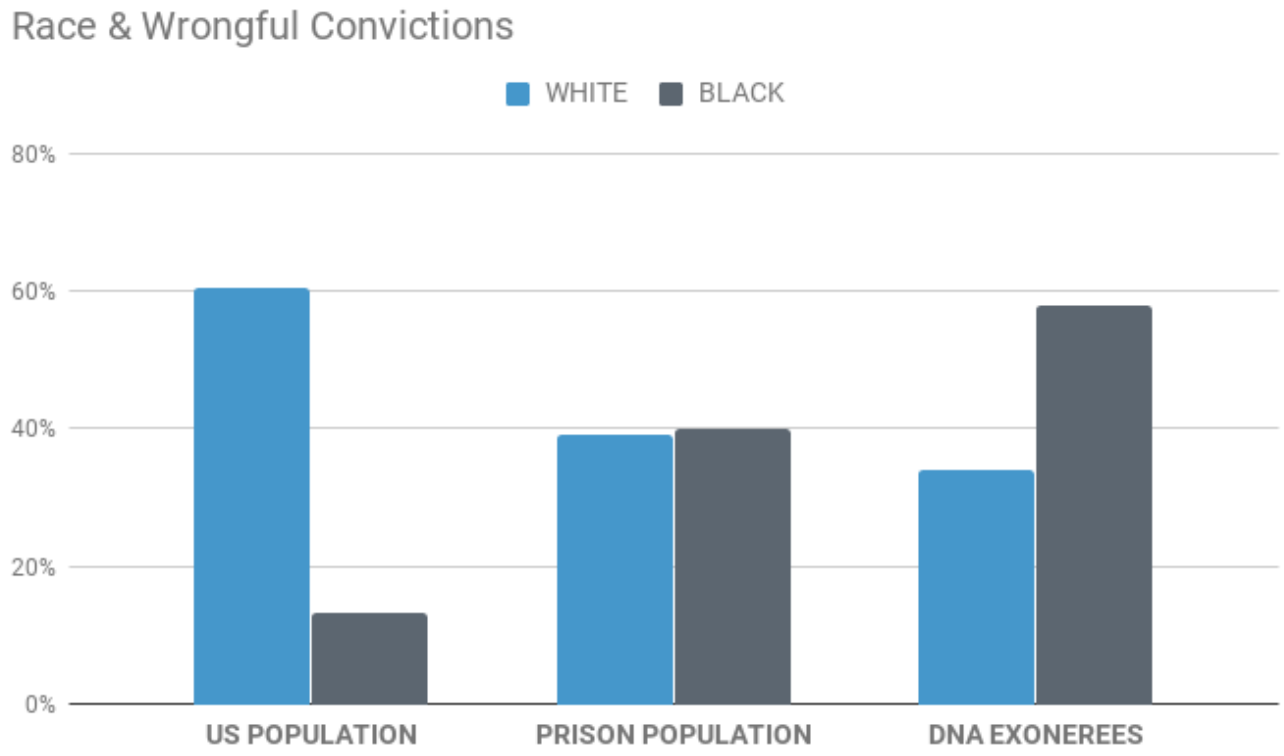
Intro

Facial recognition searches that lead to criminal charges most commonly begin with an image, often from security cameras. That photo is run through a system that compares the image to those in a large database, like a collection of mugshots or driver's license photos.

Black Americans are more likely to be arrested and incarcerated for minor crimes than White Americans. Consequently, **Black people are overrepresented in mugshot data, which face recognition uses to make predictions**

People can get wrongly identified, arrested, and convicted

- According to the Georgia Innocence Project, Studies estimate that between 4-6% of people incarcerated in US prisons are actually innocent. If 5% of individuals are actually innocent, that means **1/20 criminal cases** result in a wrongful conviction.



People can get wrongly identified, arrested, and convicted

- There are no federal laws governing the use of facial-recognition technology, which has led states, cities, and counties to regulate it on their own in various ways, particularly when it comes to how law enforcement agencies can use it.

People can get wrongly identified, arrested, and convicted

- Facial recognition systems are known to be biased and flawed, and several documented incidents in which people--all of whom are African American--have been wrongly targeted by the police due to facial recognition have already happened.

Invasion of Privacy

- **Face recognition violates our human right to privacy**. Surveillance camera networks have flooded our public spaces. Face recognition technologies are more powerful by the day. Taken together, these systems can quickly, cheaply, and easily ascertain where we've been, who we've been with, and what we've been doing.

Invasion of Privacy

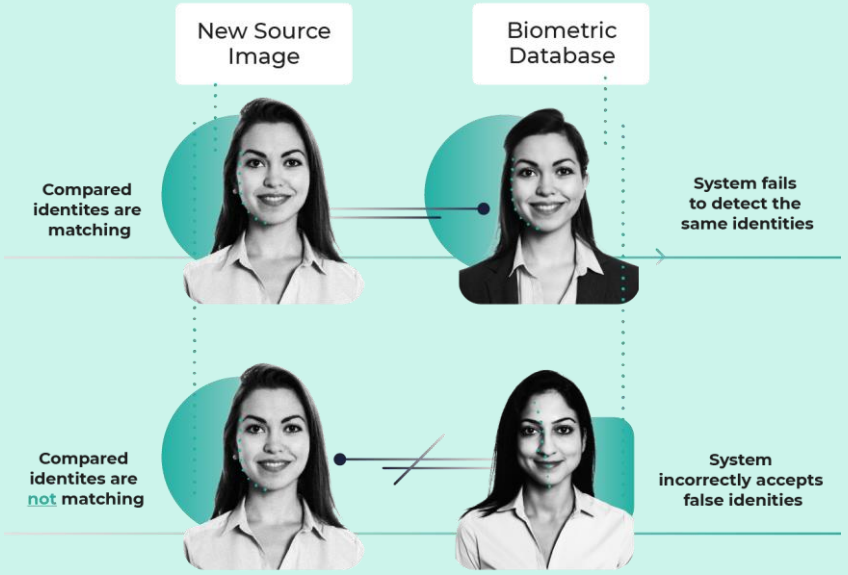
- A foundational ethical issue of facial recognition is that these technologies are often employed without consent or notification.

Invasion of Privacy

- Face recognition surveillance presents an unprecedented threat to our privacy and civil liberties. **It gives governments, companies, and individuals the power to spy on us wherever we go** — tracking our faces at protests, political rallies, places of worship, and more.

Low Accuracy

- According to the report, when utilized in this manner, **face recognition algorithms can achieve accuracy ratings of up to 99.97 percent** on the Facial Recognition Vendor Test conducted by the National Institute of Standards and Technology. However, accuracy rates are typically lower in the real world.



Low Accuracy

- Face recognition is generally problematic; **it is often inaccurate and has differential error rates by race and gender**, which is unacceptable for a technology used for a public purpose.

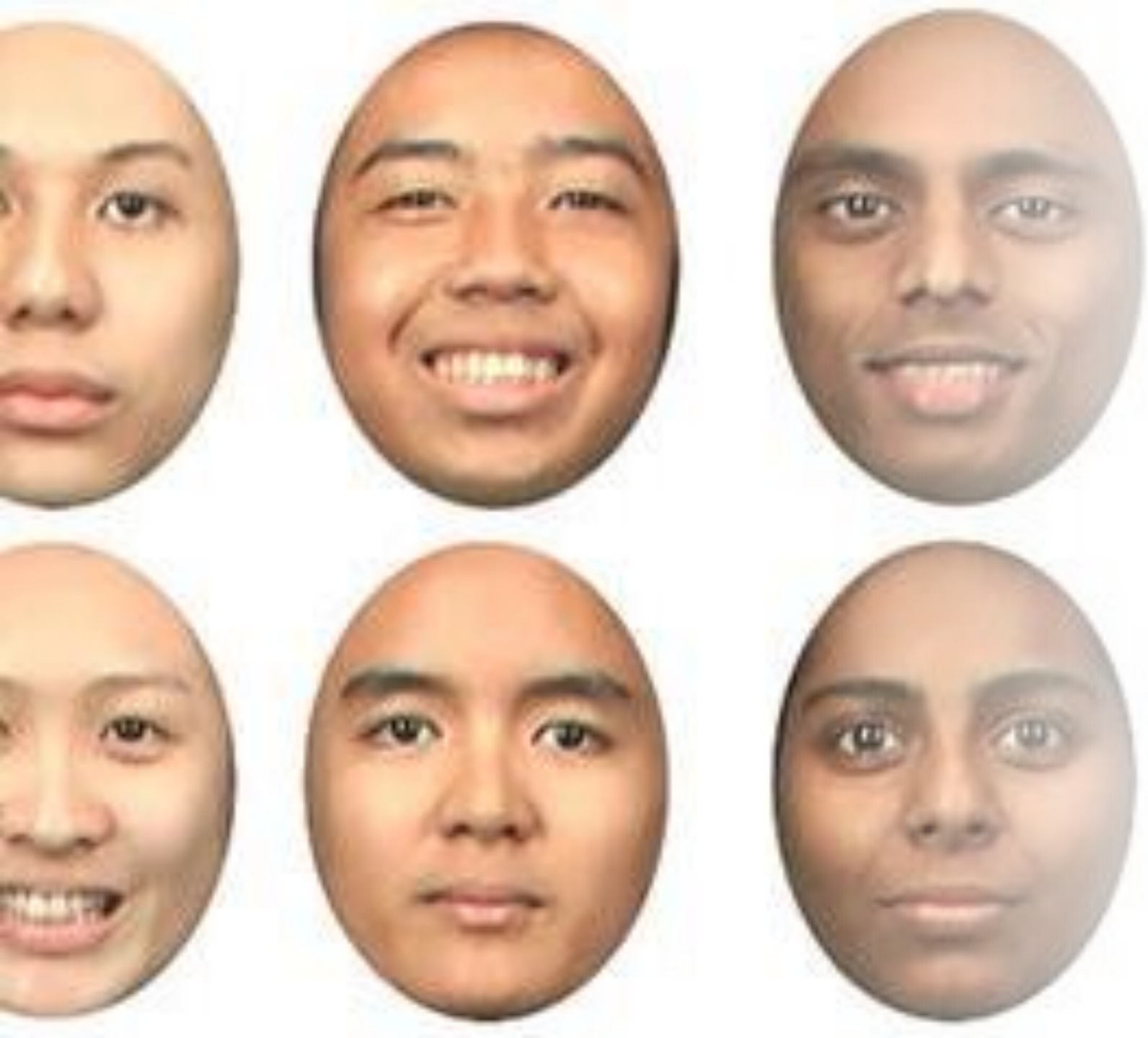
Low Accuracy

What are the limitations of facial recognition?

- Poor Image Quality. The effectiveness of facial-recognition algorithms is influenced by the image quality
- Small Image Sizes
- Different Face Angles
- Data Processing and Storage

Racial Discrimination

1. Racial profiling by police leads to the disproportionate arrest of people of color
2. Facial recognition technology, in turn, uses arrest data (mug shots) borne from discrimination
3. That data continues to fuel more racial discrimination via surveillance of communities of color.

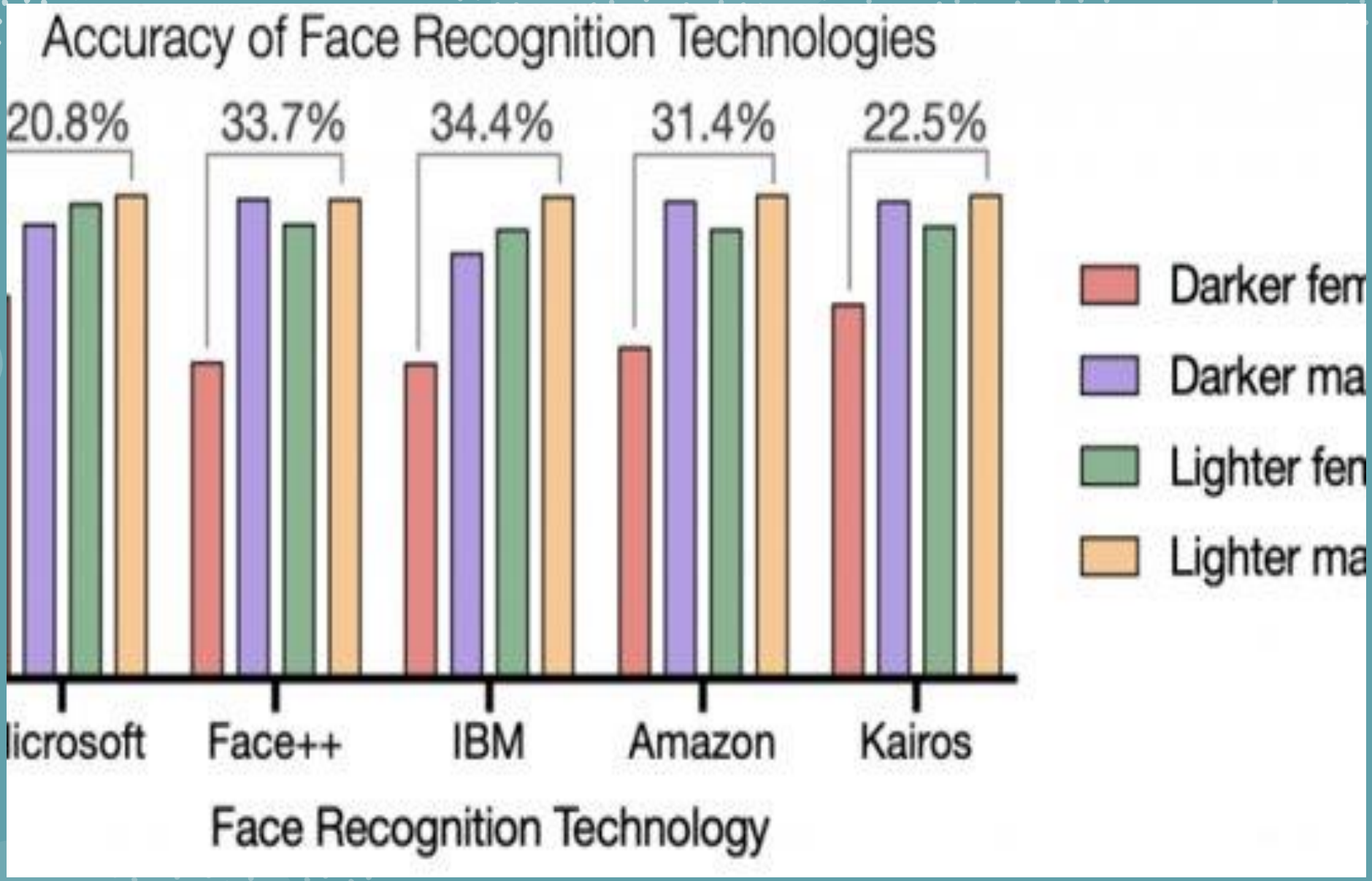


Racial Discrimination

- To be accurate, machine learning needs a big dataset. The more data you put in, the more accuracy you get out. Since minorities are less well represented in the population than the majority, **a lack of data** may explain much of the “bias” in face recognition systems

Racial Discrimination

- *The **Gender Shades project** revealed **discrepancies** in the classification accuracy of face recognition technologies for different skin tones and sexes. These algorithms consistently demonstrated the poorest accuracy for darker-skinned females and the highest for lighter-skinned males.*


Accuracy of Face Recognition Technologies
20.8%
33.7%
34.4%
31.4%
22.5%
Darker fem
Darker ma
Lighter fem
Lighter ma
licrosoft
Face++
IBM
Amazon
Kairos
Face Recognition Technology

Results – Officer #1

- **Is facial recognition racially biased?**

"Yeah facial recognition can be racially biased as they are sometimes lacking in the category of minorities. However, there is better than bad for them and can keep majority of people safe."

- **Does the use of facial recognition increase the risk of false arrest?**

"Yes the use ofr facial recognition does increase the risk of false arrests. Anything man made can have faults in it."

Results – Officer #1 (Continued)

- **Is facial recognition accurate enough for law enforcement use?**

"I believe that facial recognition is accurate for law enforcement to get a close call, but to only use facial recognition is a stretch."

- **Are there risks in using facial recognition technology for travel?**

"Facial recognition and travel can be risky if it is breached because there would be so many faces in the database."

Results – Officer #2

- **Is facial recognition racially biased?**

"I wouldn't say facial recognition is racisit, but it needs a large database to be as close to accurate as possible. And minorities may suffer from this."

- **Does the use of facial recognition increase the risk of false arrest?**

"The use of facial recognition can make an increase in false arrests given that it is not ever 100% accurate."

Results – Officer #2 (Continued)

- **Is facial recognition accurate enough for law enforcement use?**

"Facial recognition is not enough for law enfforcement, many use fingerprints, blood samples, and other techniques to ensure they have the right person."

- **Are there risks in using facial recognition technology for travel?**

"There are risks with facial recognition and travel, if we continue to do this trial and error soon doctors' offices and other places."

Conclusion

- Face recognition technology has made considerable strides during the previous 20 years. For secure transactions, security and surveillance operations, and building access control, among other uses, automated identifying information verification is now a possibility. Recognition algorithms can take advantage of these restrictions and achieve high recognition accuracy because these applications frequently work in constrained environments. However, the use of next-generation facial recognition systems will be widespread in smart environments, where computers and other devices act more as helpful assistants. Despite all of facial recognition's successes and social developments, there are a number of drawbacks that make life difficult for many people in society. My study's focus was on the implications of facial recognition technology for

Discussion – Summary of Key Findings

- Research Problem: Facial recognition has had a negative effect on false arrests throughout the world

- Findings: Facial recognition can be a very positive tool that contributes to the safety of our wellbeing. However, when used in crimes and arrests it can backfire given that the database might misinterpret one face for another leading to false arrests throughout the system.

Discussion – Sharing Interpretations

- Many interpretations from people that I interviewed sided with me on the fact that facial recognition is amazing, but just like anything manmade it has its flaws that can be detrimental

Discussion – Discussing the Implications

- Implications used were good, but to make it more efficient we can look at charts of false arrest and those arrests that came from facial recognition and look at those findings

Discussion – Acknowledging the Limitations

- Cannot get 100% from this survey questionnaire because we cannot survey every law enforcement in the world
- Not everyone will be willing to answer questions for your project

Discussion – Stating Recommendations

- For future research one will need to gather more data from a larger selection of cops and law enforcement officers

Future Work / Recommendations

- Conduct a South Carolina wide survey on the effects of facial recognition on false arrests.
- The racist history behind facial recognition also known as, techno-racism

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