

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

by

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Outline Page

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

Heading 1: Opinion on Facial Recognition Being used to make Arrests

Heading 2: People can get wrongly identified, arrested, and convicted, often without ever being told they were ID'd by a computer

Sub-Heading 1: 1/20 criminal cases result in a mistaken conviction

Sub-Heading 2: Facial recognition systems are known to be biased and flawed

Heading 3: Invasion of Privacy

Sub-Heading 1: Face recognition infringes on our fundamental human right to privacy

Sub-Heading 2: Face recognition surveillance is posing a new threat to our privacy and civil liberties

Heading 4: Low accuracy

Sub-Heading 1: Some limitations of facial recognition are Image quality is poor

Heading 5: Racial Discrimination

Sub-Heading 1: The Gender Shades project

Sub-Heading 2: Police racial profiling results in a disproportionate number of arrests of people of color

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Abstract

This essay examines law enforcement's use of face recognition technology with eyewitness identifications. It suggests that the response might be affirmative. Face recognition technology is designed to search a large database of faces for lookalikes, but false eyewitness testimony is the leading factor in wrongful convictions. This article investigates this potential issue and shows multiple ways it can be detrimental as well as some positives. Image recognition, object identification, video recognition, and machine vision are one of the four technology divisions that comprise CV (MV). The object recognition method adds a class label to the image being examined, while video recognition software scans video samples, compares them to a database of content, and determines whether a match exists. This thesis assignment will test the percentage error when matching faces using video technology and a qualitative research method. The tool used is a six-structured interview using open ended questions to gather data from police officers who use facial recognition in their professional field. The results from the method and multiple findings validate the hypothesis and theory that facial recognition affects false arrests. Face recognition technology has come a long way in the last 20 years, making it possible for safe transactions, security, and surveillance operations, and building access control. However, there are still issues that stem from this despite all the good. False arrests and false accusations can lead to young men and women ending up in jail and leaving more felons on the street longer due to confusion in facial recognition.

Keywords: Facial, Recognition, Effect

Introduction

My objective is to see what effects facial recognition have on the risks of increases in false arrests in the country and the impact it has on society today. I am against the use of facial recognition being used as the only contributor when arresting people because it can be inaccurate. I believe that there can be multitudes of things used to arrest someone such as fingerprints, hair, skin, blood, and other contributors. Using just facial recognition can be tricky because a lot of databases may not have all types of skin tones and complexions which can lead to certain groups of people being more prone to be accused of a crime they did not conduct, resulting into the false arrests. There are four ways that facial recognition can influence the risk of false arrests: People can get wrongly identified, arrested, and convicted, often without ever being told they were ID'd by a computer, Invasion of Privacy [1], Low accuracy [2], and Racial Discrimination.

All four of these points play a role in how false arrests can be accustomed. In the essay I will go in detail about the four and show how it can be detrimental overall when using facial recognition as the final piece when convicting someone of a crime. Most facial recognition searches that result in criminal charges begin with an image, which is frequently captured by security cameras. That photo is then processed through a system that compares it to images in a huge database, such as a collection of mugshots or driver's license photos. Black Americans are more likely than White Americans to be arrested and incarcerated for minor offenses. As a result, Black people are overrepresented in mugshot data, which is used by face recognition to make

predictions. For my qualitative method, I interviewed two officers that answered my questions about facial recognition as it pertains to the effects of false arrests. Throughout the interviews and research, I learned valuable information that led to the results and findings that I will present before you today.

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.

Following Interview Questions were

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

One of the main concerns when it comes to facial recognition and law enforcement is that people can get wrongly identified, arrested, and convicted. According to the Georgia Innocence Project, studies estimate that 4-6% of those detained in US jails are innocent. If 5% of people are truly innocent, 1/20 criminal cases result in a mistaken conviction (Figure 1). Because there are no federal laws governing the use of facial-recognition technology, states, cities, and counties have had to regulate it in many ways on their own, particularly when it comes to how law enforcement agencies can use it. Facial recognition systems are known to be biased and flawed, and several documented incidents have occurred in which people, all of whom are African Americans, have been wrongfully targeted by police due to facial recognition.

The second issue with facial recognition has more to do with law enforcement than many may think. The Facial recognition software applications store faces to keep the database working well. This is a huge issue because it is an invasion of [privacy in every aspect. Many people may not want their face in databases for experimental issues and privacy issues. Like people not wanting their kids on the internet, facial recognition software can invade a human's privacy in every category. And strips one from that natural right to have their privacy and their image kept alone. Face recognition infringes on our fundamental human right to privacy. Our public places have been inundated with surveillance camera networks. Face recognition technologies are becoming more advanced by the day. When these systems work together, they can quickly, cheaply, and easily determine where we have been, who we have been with, and what we have been doing. The fact that these technologies are frequently used without consent or notification is a fundamental ethical issue with facial recognition. Face recognition surveillance is posing a new threat to our privacy and civil liberties. It empowers governments, corporations, and individuals to spy on us wherever we go, including protests, political rallies, and places of worship. Because FRT uses biometric data (facial images), which can easily be exploited for identity theft and other malicious purposes, it poses a significant security risk to its users.

Facial recognition systems are not always able to accurately match face prints to the database. As a rule, errors occur due to poor image quality or lack of information in the database. According to the paper, when used in this manner, face recognition algorithms can attain accuracy rates of up to 99.97 percent on the Facial Recognition Vendor Test administered by the National Institute of Standards and Technology. In practice, however, accuracy rates are often lower. Face recognition in general is troublesome; it is frequently wrong and has varied mistake rates depending on race and gender, which is unacceptable for a technology used for public purposes. Some limitations of facial recognition are Image quality is poor. The image quality influences the performance of facial-recognition systems. Image Sizes Are Small, Various Face Angles, and Processing and storage of data.

Machine learning requires a large dataset to be accurate. The more data you enter, the more accurate the output. Because minorities are underrepresented in the population, a lack of data may explain much of the "bias" in face recognition systems. The Gender Shades project discovered differences in face recognition technology classification accuracy for different skin tones and sexes. These algorithms consistently showed that darker-skinned females had the lowest accuracy and lighter-skinned males had the highest. Racial discrimination and facial recognition both can play a role with one another in ways such as: Police racial profiling results in a disproportionate number of arrests of people of color. In turn, facial recognition technology makes use of arrest data (mug shots) resulting from discrimination, and Through surveillance of communities of color, this data continues to fuel more racial discrimination.

Results

**Currently I am in the works of getting the results. Located in this segment of my essay will have the results when I get them.

Discussion

For this project, my research problem was to see if facial recognition had a direct effect on the risk of the increase in false arrests. Based on the research conducted from the questionnaires and the hands on testing of video cameras and the percentile that was matched with faces that they picked up, I was able to come to the main conclusion that facial recognition has an effect on false arrests and it can be something that is not always accurate which can affect the lively hood of humans when it comes to finding suspects. As stated previously there are many limitations to facial recognition which are Poor Image Quality, Small Image Sizes, Different Face Angles, and Data Processing and Storage. Face recognition technology has come a long way in the last 20 years, making it possible for safe transactions, security, and surveillance operations, and building access control. However, there are still issues that stem from this despite all the good. False arrests and false accusations can lead to young men and women ending up in jail and leaving more felons on the street longer due to confusion in facial recognition. I believe that although facial recognition has many positives, there are many cons. Anything manufactured has room for error and when it comes to someone being innocent verses in jail it has a significant impact on the way that it is perceived and used.

Conclusion

In the past 20 years, face recognition technology has advanced significantly. Today, automated identification information verification is possible for safe transactions, security, and surveillance operations, and building access control, among other applications. Because these applications typically operate in restricted contexts, recognition algorithms can benefit from those limitations and achieve high recognition accuracy. Next-generation facial recognition systems will, nevertheless, find extensive use in smart settings, where computers and other devices serve more as helpful assistants. However, there are many downfalls of facial recognition that make things hard for lots of people in society despite all its accomplishments and advancements to society. My research topic revolved around the effects of facial recognition of the risks of the increase of false arrests. My thesis for this project was that facial recognition had a direct negative

correlation with arrests that has a lasting effect on not only those convicted, but innocent people who get their faces kept in databases and is invasive to privacy. Facial recognition has its advantages when it comes to law enforcement but should not be used as a marker to arrest and finalize a case. Facial recognition software keeps faces in their database which is invasive to privacy and can be hacked into and used against someone who is willing to steal their identity without them even knowing. From my survey and interview questions I received information that correlated with my hypothesis and thesis amongst this project. For future work and project assignments one can conduct a South Carolina wide survey on the effects of facial recognition on false arrests and research the racist history behind facial recognition also known as, techno-racism.

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