Facial Recognition: The Discrepancies with People of Color

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ABSTRACT

Studies have shown the existing racial bias in facial recognition technology, the ethical manner in how creators and users of this software stem from their ability to deduce accuracy and societal influence. The discriminatory practices implemented in procuring photo and video data for facial recognition technology, however, by default, is a failing. Living in a multicultural society without the proper lens to view its citizens only creates more contention. Understanding the making of the algorithm and its implications shed light on the biases that exist. When inclusivity is not considered, and the collection of data is disproportionate, there will be negligence in the improper use of technology, thus failing to protect citizens of color. This piece explains how human influence produces bias through the dissection of facial recognition software and, therefore, results in the domino effects it has on social accountability.

Keywords: algorithmic bias, discriminatory practice, social accountability, facial recognition technology

Introduction

When addressing the flaws in the relatively new technology that is facial recognition software, the discrepancies between technical error and human error go hand-in-hand. Improper use of technology both in its manufacturing and its mishandling is coming into question. Algorithmic bias and discriminatory practices are being held under scrutiny for its misuse and ethical competency. In light of recent events such as the death of Breonna Taylor, Jacob Blake, and the Black Lives Matter protests, the proceedings in using facial recognition software can put more black lives at risk if these biases are not corrected. California, Idaho, Texas, and Illinois are in the process of regulating the use of these technologies for its potential negligence in improper use and or human bias (Ininoluwa et. Al., 2020). There has been a failure in facial recognition software in discerning the faces of people of color. Misrecognition of skin color and a failure to detect skin color at all have resulted in false arrests and exposing the malpractice in both the making of the software and the policing acted upon through its usage. When developing the software, many factors come into consideration: facial structure and analysis, skin color, and facial characteristics. However, there are ethical concerns that need to be addressed in the development and practice of facial recognition technology, as researcher Joy Buolamwini stated, "who codes matters, how we code matters, why we code matters." When the relationship between the police and the community is contentious, the need and demand for fairness and accuracy are non-negotiable.

Determining the Ethical Factors in an Algorithm

Joy Buolamwini, a researcher from Massachusetts Institute of Technology, explored the flaws on facial recognition technology when she found the software couldn't read her face, discovering that the software worked differently for people of color and gender. Finding that there was ninety-nine percent accuracy when identifying white men. Still, the darker the skin tone, the more the errors occurred. Facial recognition misread thirty-five percent of darker-skinned females with sample data of over two hundred photos and for darker- skinned males less twelve percent in a sample size of three hundred and eighteen images were misread. They were recognizing again that most data being collected can be considered a discriminatory practice and are not socially accountable; for example, in lower income cities where people of color are the majority, the potential for technical error increases. The installments of cameras seem to focus on communities of color, which only then provides disproportionate use of data. Westhaven resident Rosia Parker and local civil rights attorney Jeff Fogel spoke out in the local news after finding four new installments in black residential areas only, stating, "The problem here is that there is a misperception that crime doesn't happen in predominantly white areas," said local resident Angeline Conn at the January 6 council meeting. "I'm not for state surveillance at all, period—but if you're not extending the same surveillance to those communities, you're being biased" (Hitchcock, 2020). The methods in collecting data have also been considered a violation of privacy, using mugshots, license photos, and surveillance video all without the individual's consent.

Misuse of Technology

Social online communities and photo hosting websites are also being used for photo data, "For example, IBM's Diversity in Faces dataset was sourced from Creative Common licensed images uploaded to Flickr [32]. While these images are open for public internet use, the Flickr users who uploaded the photos, and the individuals in the photos, did not consent to being included in a facial recognition dataset" (Ininoluwa et al., 2020). A study by Daniel E. Bromberg, Étienne Charbonneau, and Andrew Smith examined the accuracy of facial recognition software and body camera data, stating, "The size of a database, against which captured pictures and videos are analyzed through, has a significant impact on false positives. As Patrick Grother, a computer scientist with the National Institute of Standards and Technology (part of the Commerce Department), stated "the larger you go, the greater the chance of a false positive ... Inevitably if you look at a billion people you will find somebody that looks quite similar"(citedinSydell,2016)" (Bromberg et. al., 2019).

The subsequent study by scholar Joy Buolamwini, Deb Raji, and Timnit Gebru explained the ethical concerns when auditing these algorithms for accuracy: a process of targeting specific demographics during an audit by which not all demographics are being represented, thus making for an improper standard of measure, stating, "If it is not communicated when it is appropriate to use a benchmark, then there is no indication of when it becomes an obsolete measure of performance. This also applies for aligning the context of use of the audited system and the audit - If one demographic is under-represented in a benchmark, then it should not be used to evaluate a model's performance on a population within that demographic. Even with intersectional considerations, there is a limit to the scope of which categories are included" (Ininoluwa et al., 2020).

Questioning Accountability

The ethically questionable manner in which authorities may choose to conduct future investigations leaves for speculation that human error versus machine error will not have a simple solution. What remains clear is that the software is only as good as the person coding it, and human beings are not without flaws. Statistically, black people face more arrests than white people in the United States. According to the Boston University Law Review (2018), "The black arrest rate is at least twice as high as the white arrest rate for disorderly conduct, drug possession, simple assault, theft, vagrancy, and vandalism. The black arrest rate for prostitution is almost five times higher than the white arrest rate, and the black arrest rate for gambling is almost ten times higher." The American Civil Liberties Union, Crockford (2020) explains how the existing narrative that people of color are criminals is perpetuated through using mugshot data. When statistically, black people are more likely to be in the police databases, it provides more opportunity for racial bias, negligence, and improper use of the software. The possible occurrence of mistaken identity is unacceptable. As such was Robert Williams, according to the ACLU (2020), he was arrested and detained for 30 hours by Detroit Police based on the error made through their facial recognition software. Mistakenly arrested for stealing a watch from a local shop, Williams only similarity to the suspect was his size and skin color. The American Civil Liberties Union stated that Detroit Police used Williams license photo for a line-up with other suspects for the shop security guard; however,

the security guard did not witness the robbery. His or her only reference was grainy surveillance footage.

Conclusion

There is a concern for civil liberties when probable cause is no longer a factor in making arrests if one lives in a state where you cannot refuse to show identification. Furthermore, the lack of investigation leaves to question the integrity of the Detroit Police department; in the article, it states, "Robert's arrest demonstrates why claims that face recognition isn't dangerous are far-removed from reality. Law enforcement has claimed that face recognition technology is only used as an investigative lead and not as the sole basis for arrest. But once the technology falsely identified Robert, there was no real investigation" (Burton-Harris & Mayor, 2020). Under the FBI testimony for facial recognition (2019) it states: “This service does not provide positive identification, but rather, an investigative lead and analysis results that are returned to the FBI agent in the form of a “most likely candidate.” The FBI agent must perform additional investigation to determine if the results provided by the FACE Services Unit is the same person as the probe photo,” however, the situation with Roberts proves that “predictive policing” can and has been acted upon regardless of the technologies intent. According to The Washington Post (2020), companies such as IBM, Microsoft, and Amazon have made statements to refrain from the use and selling facial recognition technology until there are federal laws in place.

The current global pandemic has effected of facial recognition software even more so, during a time where masks a necessity. A recent study by Mei Ngan (2020), researcher at the National Institute of Standards and Technology, proved that the use of face masks caused an error rate between twenty to fifty percent—the more coverage, meaning up to seventy percent of facial coverage, the higher the error. Factoring in camera effects such as lighting and coloring of the masks have also proven worrisome. Ngan explains how the contrast of colors can cause over and under exposure, i.e., a person with dark skin in a light mask or vice versa, making it image unreadable. The use of masks in correlation with the already existing racial bias may result in a possible update iris recognition to remedy the current circumstances during this unprecedented time. According to NPR news radio (2020), study for algorithmic accuracy for the reading of masks will begin in Fall of 2020. Although companies are taking precautions, Buolamwini's message remains true: the software is only as accurate as the data being used. Consideration on how the future of this technology will factor fairness means to procure diverse data and diversity of the software creators and social accountability must be expected to those with authority, using this resource in the present and future.

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