Growth of Facial Recognition

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CS 4930 Privacy and Censorship

I asked Chat GPT for a topic and it brought up facial recognition which we recently (ish) discussed in my introduction of computer security class. My mom also got back from a cruise recently (again ish) and said how customs was using facial recognition to check against your passport and what not to allow you back into the country. Since the topic keeps coming up, I thought why not research for this paper.

Note: This is not a part of the paper but I thought it was interesting reason why I chose it, so I included it. The paper actually begins on page 2. Thanks.

Growth of Facial Recognition

Facial Recognition has been on the rise from as early 2001. With cameras and video recordings becoming more common place in this age of technology, the ability for devices to pick up more detail has grown alongside that demand. This detailed picture quality has led to schools, governments, and law enforcement agencies using them to identify people, emotions, political standings and find potential suspects.

# Why and How Facial Recognition Works

It is common understanding as to how fingerprints work and can help identify an individual with each person having an almost unique set (though common belief may think exactly unique, that has been shown to be incorrect in many cases) and a database holding many known sets and picking various points of the print to compare until that database can return a match.   
 Facial Recognition technologies (FRT) work in a similar fashion but without the need of gaining the fingerprint (or facial print in this case). Faces of individuals are stored in a database and run through a program that compares those in the database to those of the individual in question (Hamann & Smith, 2019). This process can be done extremely quickly depending on the software being used to compare the individuals, and even played over video or live video in efforts to find someone in a crowd.

The way the data is filled is with public records from driver’s license photos, government ID’s such as passports, mug shots (Hamann & Smith, 2019). Other public records that individuals might not think of include social media such as Facebook (now Meta), Instagram, and the numerous others as they are mostly publicly found and linked to your name and -- as discussed in class the other day – even addresses, past residences or towns, family, friends, all of which can further prove they are pictures of the individual in question and expand the database (Hamann & Smith, 2019).

With these databases filled with all these public images, the software being used can then compare and identify that individual. In the case of the person sharing everything on Facebook, and if the database can hold more info, that software could provide address or contacts to get in touch with you.

# Potential issues with Facial Recognition

The issue that Smith and Miller brough up in their article is the ethics of privacy. Though location is undisclosed, they went through and listed some rights to privacy in public spaces. Bringing to light that if you are filmed or photographed or tracked with public cameras, you have the right to see that information as it is in the public space. They also talked about the right to choose not to be pictured if a person does not wish.

From there Smith and Miller discussed how such laws since they are so loosely defined are being stretched or overwritten as seen fit by others. They noted that if CCTV is in the area and it is known you are being recorded already then, the first and second of those laws can be ignored. Next, they brought to attention that if police are using said videos and pictures for an investigation, then again, those laws can be overwritten.

How far can we stretch these rules and how many loopholes are built in against our privacy? Are their laws to say these entities that stretch the rules must disclose that information at some point later? These are question that need further investigation as well.

Resources

Andrejevic, M., & Selwyn, N. (2020). Facial recognition technology in schools: Critical questions and concerns. *Learning, Media and Technology*, *45*(2), 115-128.

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Lai, X., & Rau, P. L. P. (2021). Has facial recognition technology been misused? A public perception model of facial recognition scenarios. *Computers in Human Behavior*, *124*, 106894.

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Hamann, K., & Smith, R. (2019). Facial recognition technology: Where will it take us. *Crim. Just.*, *34*, 9.

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Smith, M., & Miller, S. (2022). The ethical application of biometric facial recognition technology. *Ai & Society*, 1-9.

(<https://link.springer.com/article/10.1007/s00146-021-01199-9>)

Kosinski, M. (2021). Facial recognition technology can expose political orientation from naturalistic facial images. *Scientific reports*, *11*(1), 100.

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