Facial Recognition

Computational Artifact

2a. The computing innovation that is represented by my computational artifact is facial recognition. Facial recognition's intended purpose it to be used a security feature for everything from unlocking phones and front doors to accesses files and securing information by ensuring that only one unique user's face can pass the test to gain access. My computational artifact illustrates and explains the function of facial recognition by detailing the process that a computer goes through to detect and recognize faces in order to implement them in security features.

2b. I created my computational artifact in a graphic design application called Affinity Designer. I created the diagrams by drawing lines and boxes with the pen tool and I wrote text using the text tool. I used the shape drawing tools to create the diagrams of facial recognition process and its parts.

Computing Innovation

2c. One beneficial effect that facial recognition technology has had on society is in the criminal justice system. Law enforcement agencies use biometric software to scan faces in CCTV footage, as well as to identify persons of interest in the field (2). This allows law enforcement to identify, locate, and plan for the successful apprehension of criminals, resulting in a safer society and community for all. One possible harmful effect of facial recognition technology deals with a concern for its effectiveness. Facial recognition is supposed to only allow a unique person to pass the recognition test, but in

some cases, others have been able to pass the test by simply holding up a picture of the correct face or even just finding a look-alike. Recently, a 10 year old boy named Ammar Malik was able to easily pass his mother's phone's facial recognition lock because his features were similar enough to his mother's for the computer to recognize him (1). Similar cases have happened with twins or other family members. Furthermore, some facial recognition lacks in being able to produce 3D scans, failing to recognize if what is in front of the camera and sensors is a person or a picture. This can pose a serious privacy and security concern. If people other than oneself can access one's private files and information, then a malicious person could steal one's identity, photos, videos, private texts, emails, etc. If malicious people were to break past the security features of facial recognition on a large scale, the stability and privacy of an entire community or society would be at risk.

2d. In order for facial recognition to work, databases must store vast amounts of information about every person who wishes to use the technology, including the time and location where specific people were recognized by cameras equipped with facial recognition technologies as well as unique facial-feature-specific dimensions such as the distance between eyes, length of jaw, height of nose, etc. The computer analyzes the data it gathers, comparing it to a template of previous data stored about a specific person's face, and then decides whether or not the face is the same. If the data matches closely, access to whatever a person is trying to get is given, otherwise, access is denied (3). However, this poses a potential data security concern. The information in these databases are susceptible to data breaches or file leaks, which

could result in private data falling into the hands of malicious people who could use the time and location files of a person to track, stalk, or even harm them.

References

2e.

(1) "10-Year-Old Staten Island Boy Hacks IPhone X Facial Recognition." New York's PIX11 / WPIX-TV, 17 Nov. 2017, pix11.com/2017/11/17/10-year-old-staten -island-boy-hacks-iphone-x-facial-recognition/.

(2) "Biometric Facial Recognition." FindBiometrics, findbiometrics.com/solutions/facial-recognition/.

(3) Solutions, Tecsynt. "Things You Were Afraid To Ask: Pros and Cons of Facial Recognition Technology For Your Business." Medium, Medium, 5 Oct. 2017, medium.com/@tecsynt/things-you-were-afraid-to-ask-pros-and-con s-of-facial-recognition-technology-for-your-business-aa3fb0ac504e.