Explore PT - Written Response Template

Assessment Overview and Performance Task Directions for Students

Computational Artifact

Prompt 2a. Provide information on your computing innovation and computational artifact. ● Name the computing innovation that is represented by your computational artifact. ● Describe the computing innovation's intended purpose and function. ● Describe how your computational artifact illustrates, represents, or explains the computing innovation's intended purpose, its function, or its effect. *(Must not exceed 100 words)*
The Computing innovation that is represented in my computational artifact is Facial Recognition Software. Facial recognition software is a kind of biometric technology that is used to identify a person using an image or video of their face. It typically measures distinguishable facial features in order to identify a person. **(3)** My computational artifact shows images as well as a brief flowchart that conveys how the technology measures a face. The binary background helps to emphasize the importance of computing technology in the effectiveness of this innovation.

2b. Describe your development process, explicitly identifying the computing tools and techniques you used to create your artifact. Your description must be detailed enough so that a person unfamiliar with the tools and techniques will understand your process *(Must not exceed 100 words)*
I created my computational artifact using google slides. My artifact was one page, which I made the background to be an image of binary code suspended in a visualized version of cyberspace. I got this image off of google images, as I also did for the other images of peoples faces being scanned. Google slides has a feature that allows me to add text boxes and arrows. I used those two things to create a brief flowchart of how facial recognition technology identifies a person. The boxes, which contain typed information, are connected by arrows creating a flowchart.

Computing Innovation

2c. Explain at least one beneficial and one harmful effect the computing innovation has had, or has the potential to have, on society, economy, or culture.

(Must not exceed 250 words)

One beneficial effect of this technology is its uses in law enforcement and public safety. Law enforcement agencies routinely use facial recognition technology to uncover criminals or to find people reported to be missing. **(3)**. Many cameras used in small businesses and at airports are equipped with facial recognition. In fact, it has been predicted by the U.S Department of Homeland Security that by 2023, 97 percent of travalers would have had facial recognition technology used on them.**(3)** This helps to deter crime because if people know they are being monitored, they are less likely to commit a crime. **(3)**

This technologies' uses in law enforcement however, can also be harmful. It is a sad truth that many of the databases that facial recognition utilize, have an overrepresentation of minorities. **(1)** As a result, the suspects of crimes tend to be people of color and other less privileged people which leads to a harmful effect on society: a reinforcement of racial discrimination. **(1)**

2d. Using specific details, describe:

- The data your innovation uses;
- How the innovation consumes (as input), produces (as output), and/or transforms data; and
- At least one data storage concern, data privacy concern, or data security concern directly related to the computing innovation.

(Must not exceed 250 words)

Facial recognition software falls into a sub-category of technology called Biometric Technology. Biometrics is defined as "technologies that allow for the automated recognition of individuals based on their behavioral and biological characteristics." **(2)** As such, the data that this innovation uses is media showcasing visualizations of a person's face such as videos or images. So long as it clearly shows a face, it can be used by the software.

The software consumes an image or a video and uses patterns it sees and compares those patterns to a model of a face in order to "establish the presence of a face." **(2)** If a face is detected, the software then measures the characteristics of the face and uses that data to produce a "faceprint" of the individual. (Similar to how other biometric technologies use sensors to produce metadata such as fingerprints or footprints). The faceprint is essentially the metadata of the face as it it is compiled into a database and compared to all the other faces. **(2)** When comparing two faceprints, the algorithm checks the similarities in their biometric data and generates a confidence score representing how closely the faces look like each other. **(2)**

One data security concern is the misidentification of an individual by this technology. Facial recognition technology is not fool-proof, and the ramifications of misidentifying some one could be dire. This may include false arrests or false accusations.

References

2e. Provide a list of at least three online or print sources used to create your computational artifact and/or support your responses through in-text citation to the prompts provided in this performance task.

- At least two of the sources must have been created after the end of the previous academic year.
- For each online source, include the complete and permanent URL. Identify the author, title, source, the date you retrieved the source, and, if possible, the date the reference was written or posted.
- For each print source, include the author, title of excerpt/article and magazine or book, page number(s), publisher, and date of publication.
- If you include an interview source, include the name of the person you interviewed, the date on which the interview occurred, and the person's position in the field.
- Include in-text citations for the sources you used.
- Each source must be relevant, credible, and easily accessed.

1. Bacchini, F. and Lorusso, L. (2019), "Race, again: how face recognition technology reinforces racial discrimination", Journal of Information, Communication and Ethics in Society, Vol. 17 No. 3, pp. 321-335. https://doi.org/10.1108/JICES-05-2018-0050

2. Elias Wright, The Future of Facial Recognition Is Not Fully Known: Developing Privacy and Security Regulatory Mechanisms for Facial Recognition in the Retail Sector, 29 Fordham Intell. Prop. Media & Ent. L.J. 611 (2019). Available at: https://ir.lawnet.fordham.edu/iplj/vol29/iss2/6

3. Marr, Bernard. "Facial Recognition Technology: Here Are The Important Pros And Cons." *Forbes*, Forbes Magazine, 19 Aug. 2019, www.forbes.com/sites/bernardmarr/2019/08/19/facial-recognition-technology-here-are-the-important-pros-and-cons/#68aaaf9c14d1.