

Explore — Impact of Computing Innovations

Written Response Submission Template

Submission Requirements

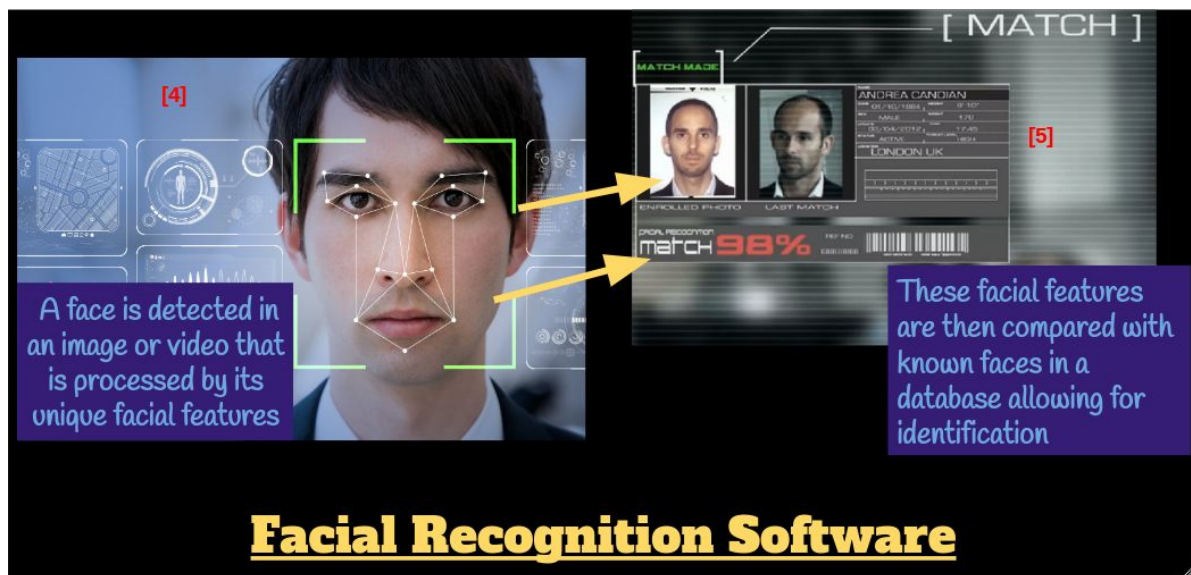
2. Written Responses

Submit one PDF document in which you respond directly to each prompt. Clearly label your responses **2a–2e in order**. Your responses must provide evidence of the extensive knowledge you have developed about your chosen computing innovation and its impact(s). Write your responses so they would be understandable to someone who is not familiar with the computing innovation. Include citations, as applicable, within your written responses. **Your response to the first four prompts (2a–2d) combined must not exceed 700 words.**

Computational Artifact

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.





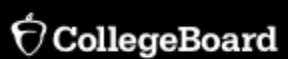
(Approximately 100 words)

Insert response for 2a in the text box below.

The computing innovation represented by my computational artifact is facial recognition software.

This software functions by detecting a face in an image or video that is matched with known faces in a database for identification [1]. This purpose to then identify individuals in the image or video which may be used for security measures and catching crime [1].

My computational artifacts describes how facial recognition software captures images, identifies faces within these images, and compares these faces with individuals to the serve the purpose of identification.



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 those tools and techniques will understand your process.

(Approximately 100 words)

Insert response for 2b in the text box below.

I used Google Drawings to create the background and text for my artifact. Then I selected images off of Google Images that best represented the function of facial recognition software. I copied and pasted these images from their original articles to my google images document. Then I cited these images with numbers in brackets.



Computing Innovation

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

(Approximately 250 words)

Insert response for 2c in the text box below.

One beneficial effect facial recognition software has on society is lowering retail crime rates. The photographs of known shoplifters are matched to a criminal databases. Then, retail loss prevention and security are notified to prevent further crime causing rates to decrease [2].

One harmful effect facial recognition software has the potential to have on society is its misidentifying tendencies, more often misidentifying people of color [3]. This misidentification can lead to extreme consequences as this device is used by law enforcement and could incriminate the wrong person [3].



2d. Using specific details, describe:

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

(Approximately 250 words)

Insert response for 2d in the text box below.

The data that facial recognition softwares consumes are pictures and videos through cameras capturing their images. First, the software identifies the part of the image that represents the face[1]. Secondly, the image is transformed into a format that allows all images to have the same resolution, focus, brightness, etc [1]. Thirdly, facial features are extracted from the image so that the software can now focus on only the most important bits of data. Now, object classification begins where the software matches facial features to individuals [1].

One data privacy concern is that humans will be tracked by simply going out in public. This is an invasion of privacy that would be prohibited by the U.S. Supreme Court as in *Carpenter v United States* Chief Justice John Roberts stated, "A person does not surrender all Fourth Amendment protection by venturing into the public sphere," [3]. With facial recognition, this privacy is not protected because people are being tracked by their face when they go into public.

References

2e. Provide a list of at least three online or print sources used to create your computational artifact and/or support your responses 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 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 citations for the sources you used, and number each source accordingly.
- Each source must be relevant, credible, and easily accessed.

(Note: No word count limit for this answer)

Insert response for 2e in the text box below.

[1]

Kuflinski, Yaroslav. "How Facial Recognition Works." *Iflexion*, Iflexion, 23 Jan. 2019, www.iflexion.com/blog/face-recognition-algorithms-work/.

[2]

Newman, Daniel. "Facial Recognition Software: The Future Is Here." *Forbes*, Forbes Magazine, 25 Sept. 2018, www.forbes.com/sites/danielnewman/2018/09/18/facial-recognition-software-the-future-is-here/#1992042299d7.

[3]

Hartzog, Woodrow. "Facial Recognition Is the Perfect Tool for Oppression." *Medium.com*, Medium, 8 Aug. 2018, medium.com/s/story/facial-recognition-is-the-perfect-tool-for-oppression-bc2a08f0fe66.

[4]

Carter, William Michael. "Big Brother Facial Recognition Needs Ethical Regulations." *Phys.org - News and Articles on Science and Technology*, Phys.org, phys.org/news/2018-07-big-brother-facial-recognition-ethical.html.

[5]

Stroud, Matt. "Did Chicago's Facial Recognition System Catch Its First Crook?" *The Verge*, The Verge, 8 Aug. 2014, www.theverge.com/2014/8/8/5982727/face-wreck-how-advanced-tech-comes-up-short-for-police.