

Eric G

Design Seminar

2/26/2020

Federico Pérez Villoro

Works between Mexico City and NY

Graduate of RISD

Lived 7 years in NY

Fugitive Images

Work investigates the immateriality of language, and the social impacts of emerging technologies

All work is very much in progress

Series of nike shoes were created with modified nike swooshes so that tracking software could not identify their materiality.

This becomes a larger investigation into the technologies which control face tracking algorithmic software.

Detecting pixels within an image can then be broken down into data sets.

Computer software can add layers of metadata to computer software, leading to the potential for digital tracking.

In 2013 it was found that metadata was being analyzed by large companies without the consent of the user.

Surveillance capitalism: the focused efforts by large brands and advertising agencies at tracking your digital fingerprint in an effort to precisely target you.

Snapchat has recently filed patents geared towards analyzing users photographic content.

Our biology literally becomes a commodity in the age of facial recognition software.

Ex: Apple may have exclusive rights to the facial vascular systems of its users.

Today, more images are made by machines / for machines, then by humans / for humans.

Ex: A self driving car isn't a self composing organism, but rather a single tendril to a much larger digital intellect.

Mega Face: Huge facial data set built of photos from flicker. Mega Face proved to be much more fragile than previously thought.

Extracting certain "non facial" images from these data sets becomes a form of digital archaeology, and forms the basis for works created in a residency in shin gen.

Many of the data sets are created by white men in silicone Vally, coding in a history of implicit bias, racism, and bigotry.

Ex: Facial recognition software fails to distinguish features of darker skinned individuals.

-Women with dark skin are the least recognized group of people by current AI software.

Google's camera software can now scan a users photo library, and decide which photo is best for outward exposure.

Image Net is another image bank that works to facilitate language building amongst visual AI software.

Example category from Image Net: "Failure to start"

Federico and collaborators hired a google voice actor to read out these categories as part of an exhibition.

-They also published a book with the above concepts and their "imageability".

-Presented is a social profile, followed by a number between 0-4, recognizing the recognizability and determinability of such categories by AI software.

The dialogue is now considering the possibility of escaping the facial recognition software which had been deemed biased. This perhaps allows for the individuals previously overlooked by such software to regain their inherent social importance.

Federico and collaborators created a noise mask. A noise mask is an example of one such attempt at tricking AI tracking technologies, confusing the AI camera, but remaining invisible to the human eye.

He then extrapolated out the noise from said noise masks, and explored their formal attributes. These were then turned into a series of videos.

YOLO-v3 is an example of one such facial recognition system.

Technologies like the noise mask is a small step towards the protection from involuntary participation of unknowing users, but it represents a very real antidotal possibility.

The process of masking facial recognition software by third parties are considered "attacks" by the computer science communities.

As a method for moving forward, do we as a society actively "Attack" such softwares, or do we adapt in a thoughtful sustainable manner?

Within 2001 a space odyssey, we see one of the first scenes articulating a point of observation from the computers gaze. Interestingly enough, the computers gaze is directly constructed from the gaze of Stanley Kubric.

Ultimately, the technology behind facial tracking softwares are unstoppable.

Katie

Fugitive Images

Frederico Pérez Villoro

- investigates language and emerging technologies, social political behavior
- nike air vapormax triple black swooshes
 - replica shoes, edited to slip through algorithm that would flag suspicious products
 - digital alteration or modification to shoe itself?
- logo detection
- algorithmic detection
 - privacy, images next frontier for social and political enterprises
- detecting an object within an image
 - machine learning software analyzes image pixel by pixel and compares them to a database of pre-decided images
 - recognize logo within a website and people within a crowd
 - classify content within an image itself
- metadata, info about info
 - adding info to the backend of an image
 - captioning for screen readers
 - impact in terms of policing is problematic
- illegal for government to spy on citizens, but not in case of metadata - actively surveilled without permission/due process
 - metadata may seem harmless but all woven together creates a very powerful digital fingerprint and invades privacy
- surveillance capitalism - selling metadata from user profiles
 - tailored to interests and behavior
 - targeted ads
- tech products are often built around access to our personal data
 - google suite knows everything about you based on your habits and interactions with their products and companies sell this data to advertisers
- beyond product consumption, but micro-targeting also ties to political affiliations
 - cambridge analytica, trump 2016
- how does companies being built around farming data impact images
 - facial recognition
- apple files patent to track blood vessels in face
- operational images
 - images are no longer passive products
 - don't just represent reality but perform from within it
 - images are essential components to the operational feedback loops of machines
- images we produce are parts of systems we are not even aware of

- software trained with massive amounts of photos
 - testing facial recognition software using dataset of faces scraped from flickr
 - faces that aren't human, statues, nature, etc
 - cleaning dataset to include human faces
 - digital archeology
 - how machines perceive people
 - how the human face is abstracted
 - recreation of images, digital to physical world
 - series of paintings
- datasets are not neutral
 - offer biases because of their creators
 - most created by white men in silicon valley
- facial recognition software doesn't recognize people with dark skin
- biases are compounding, women with dark skin are the least recognizable by facial recognition software
 - google used data from homeless people of color to try to better their software, exploitation
- objects are being asked to perform value judgements in gray areas, completely determined by their creators
- imagenet tries to create "language" from images, tagging images to describe them
 - flagged 3000 images of people as non-imageable
 - friction between image and language
- hired voice actors to read image net tags and concepts to physicalize these terms
- non-imageable concepts / book
 - non-imageable concepts flagged by imagenet
 - ranked in imageability level by amazon mechanical turk workers
 - how imagenet determines how well software will be able to recognize an image
- enhancing machine perception might enable more people to participate in these technologies, but who do these technologies actually benefit?
 - refusing to be recognized in these systems might enable marginalized people to take back some power
 - reclaiming agency
- altering images to trick machine learning and facial recognition programs
 - changing features
 - adding noise to images
 - sometimes just changing one pixel can completely change an image's classification by software
 - programmatic noise, not random but very specifically placed

2001: space odyssey - passengers try to have private conversation while spaceship is spying on them

-identifying a person in motion and developing alterations that make moving humans unrecognizable to facial recognition software

- adding noise causes machine to classify things that aren't actually there
- increasing contrast, scale of noise to create formally interesting images

-questioning ownership of image both online and offline

-safeguards against machine learning in real life not online

- is it possible to not be seen?

- distinction between images we capture and images we circulate online

- project intended to provide protection for image circulation but not necessarily surveillance by cameras in physical spaces

- noise addition only works against facebook facial recognition right now

- raise awareness that companies are harvesting data

Reading Responses

1. Eric Molloy

- Response-The reading offered an interesting new perspective in regards to the production of photographic imagery. After reading the article I see the camera as a binary instrument. The photographer is suggested to be the second component of the camera. Although a camera has its own functions and capabilities the photographer is need to take the shot. Phantom images create a paradox given the requirements needed to take a phantom image. Phantom images have us question the manner in which the photograph was taking. Phantom images are interesting because they are counterintuitive to there own nature. Photos are meant to offer an immersive personal experience into another person realm of existence. Phantoms photos offer an immersive experience, however, they exist outside the empathies of human life. In other words phantoms images offer experience not capable to that of humans.
- Pull quotes"What is shown in these programs comes neither from the micro- nor from the macro-cosmos, but rather from the middle level; its lower boundary line is the close-up of the human face, its higher level a street block of houses"
- "When observing the connection between production and destruction, the following analogy appears: while factories in rich countries have fewer and fewer people in them, more people than ever before perform manual labour in poor countries."
- Questions
 - 1. Do you think context and setting play a more important role in the production of phantom photos rather than a normal photograph.
 - 2. In today's day and age the allure of a phantom photo seems to be lost due to the developments in technology. Why is this?
 - 3. Is photography an autonomous action or is it defined by decision making and design?

2. Anna Pittas

- Both of these readings are in conversation with each other in regards to "new" technology. For the time, the technology talked about in Phantom Images is new and unexplored. The idea of putting a camera underneath a train to get a new perspective that cannot be created by any other means is a very creative, inventive idea. The same thing goes for animated films. While these concepts were new and cool, it also presented issues such as the "images being capable of representing sex and death." Since cartoons are typically geared towards children, should limits be put on this limitless technology? This new technology is giving us access to much more

than we have ever had access to and what was being shown to people needed to be censored. Fast forward about one-hundred years, we are now experiencing new technological advances which come with their own issues too. We are in the time of facial recognition software. Now this can be used for fun things like instagram filters and art pieces such as *Aspire Mirror* but can also be used to scan crowds for people of interest. There was also an introduction for a software that could be used in public that lets you scan people's face and access a plethora of information about them. That just sounds like an invasion of privacy. Another issue that surfaced when facial recognition did was that the program was created white phenotype, excluding people of color from being able to use the software without any issues. When creating software that should be user-friendly, we should, as the author said, "code with a universal gaze."

b. Pull quotes:

- "In fact, exact inference is only possible for a small subclass of potential problems, in which case approximations must be used. Furthermore, Potetz and Lee note that developing human 3D surface perception statistical studies (most often using Bayesian techniques) may uncover entirely new sources of information not immediately obvious from real physical models. They write: "Real scenes are affected by many regularities in the environment, such as the natural geometry of objects, the arrangements of objects in space, natural distributions of light and regularities in the position of the observer."
- "Regardless, common facial detection libraries are often trained on normalized spectrums of data that are prone to false negatives without proper light conditions. In other words, they are trained on image data that includes primarily white subjects. The white phenotype then becomes the pre-existing condition and the prototypical assemblage from which all future human characteristics are measured. As result, the darker the skin tones or the more variant a person's phenotypical features are from the average white subject, the less likely the algorithm is to recognize that person's presence."
- "Animated films, whether drawn or computer-calculated, also often used a perspective that a manned film camera cannot occupy, or only with great difficulty; for example, the perspective offered from the point of view of a bullet shot by a gun."

c. Questions

- 1. Is this the same technology that is used for instagram or snapchat filters?
- 2. Are there any privacy issues involving facial recognition in public places?
- 3. In regards to the cameras used to film underneath trains, how small did these cameras have to be? Considering it was 1920 I feel like that could be a challenge.

3. Zhongxuan Lin

- a. Both two articles present new technologies and how their influences become impressive to the art forums. The phantom photo describes a concept that a photo that could not be taken in a normal way is called a phantom photo. And the other article talks about how new technologies like algorithms and other computer based technologies could create artworks as well. Both articles show how people are discovering a new way to pursue arts. In "As if", the programmer uses an object recognition program to build a mirror. By using a software based on this algorithm, it generates an interesting and abstract geometric shape. Using it as an instrument to capture the rhythm of people's faces is innovative. It is a new approach to a field that no one has approached, just as how phantom photographers risk their lives to shoot photos of projectiles to pursue their thoughts and aesthetics of art.
- b. "In terms of computer vision, the site of exclusion in *Aspire Mirror* is also the precise moment where the black technical object is interpellated, fragmented and organized around the white visual metaphor. The coherence of racialized attributes, what I could furthermore call the "fictive

substance of race," links the dynamic instrumentalization of coherence found in computation to the "discursive negation of co-humaness."

c. Questions

- 1. Will this kind of technology be further developed in other areas of art?
- 2. How does phantom photos influence photography later?
- 3. Is this algorithm developed from facial recognition?

4. Kyndall Thornton

- a. Response: Both readings speak to the idea of different intelligent technologies being used to process data being input through varying photo recognition algorithms. The data is then converted by the technologies and because of object tracking are able to interpret what information is being displayed. Phantom Images spoke about how this tech was used during wars and within photography, speaking of how it was a way for a missile's target to be sought out. In As If, the technology was mentioned to have facial recognition capabilities in order to show a person's reflection on what inspires them. Both readings also mentioned the limitations that this "intelligent" equipment possessed as there were instances where they were meant to aid (and in some cases overtake) the role of the human eye, but were often prone to having setbacks that the programings were unable to work around.
- b. Pull quotes: "But just as the robots in factories first used manual labourers as their model until they outperformed them and rendered them obsolete, these sensory automatons are suppose to replace the work of the human eye."
- c. "The primary aim of computer vision is to interpret the visual array to understand objects detected in the environment."
- d. Questions:
 - 1. Can a phantom photo be taken at a certain angle to manipulate and falsely portray the narrative of what's happening in the image?
 - 2. With the incorporation of more diverse/inclusive collected data, what type of representational art could be created through the information's output?
 - 3. Could similar technologies from that of the "target tracking" cameras mentioned in Phantom Images and the ai facial recognition algorithms in As If be combined into one to create some form of hybrid? What could it be used for?

5. Fred Quayenortey

- a. The reading, "As if," by Ramon Amaro posed interesting questions about machine learning and it's issues as it relates particularly to areas of race and gender. I had been a little familiar with the subject as I had done a reading last semester speaking of phrases and notions the computer would have upon scanning faces. It brought up things like law enforcement and management. Needless to say, after reading this article, the prospect of this "machine learning" having a greater influence on our lives is nothing short of unnerving. I appreciate the sort of "path to correction" the article offers by proposing greater diversity pools in the early stages of programming, but I tend to be a bit cynical about it's enforcement.
- b. For Buolamwini, a failure to recognize black faces as coherent human objects demonstrates "a lack of diversity in the [data] training set [that] leads to an inability to easily characterize faces that do not fit the normal face derived from the training set."
- c. "Any solution to the complexity of the relation between black individuals and algorithms is only exacerbated by an over-dependence on mathematics as truth, and that which already exists in computation as fact—particularly in circumstances such as police surveillance or managerial oversight, where face detection reaches beyond the exploration of aspirations toward the operative reduction of life chances."
- d. The bullet is a blind idiot

- e. "Iraq allowed a couple of journalists to stay in Baghdad during the war, among them Pete Arnet from CNN. They sent us the green contrast-enhanced panoramas. Like Ernst Jiinger in Paris, Arnet experienced the bombarding of Baghdad first-hand from the roof of his hotel, but, in contrast to Ernst Jiinger, he was held under a sort of house arrest."
- f. Questions
 - 1. Can the issue of machine assumption be realistically fixed? Is there a way to properly diversify the inputs for machines if the people programming them will always impact the data with their views?
 - 2. Would civilization without our current understanding of poverty operate solely with automation?
 - 3. In line with the discussion of "a bullet is blind" can we see machine learning being so sophisticated that it takes over the battlefield? What would that look like?

6. Jennifer Aguirre

- a. Response: In both these readings, they make an important emphasis on technology and how much influence it has on the past and still currently. In "Phantom Images" they use examples of phantom shots which was a new style in photography that became quite experimental. It was a new perspective that was brought up and it was very controversial considering the setting of these phantom shots were being taken during the war. And while reading, "As If" it really brought to light how much technology has evolved and developed over the years. I think face tracking was something that was once considered out of reach, but now it's evident in facial recognition footage, and even in this piece called Aspire Mirrors. It's something that has become so accustomed to us, from Snapchat or Instagram filters, that it can be seen as a norm. And even though there were major advancements in technology, they still are limited in some way. Given the facial recognition software, they still lack in being able to identify darker skin tones and facial features.
- b. Pull quotes "The artificial cannot comprehend the full scope of life and human existence"
- c. Questions
 - 1. Should technology ever become limited?
 - 2. Will technology ever be deemed "perfect"?
 - 3. Buolamwini says she developed the Mirror to induce empathies that can help facilitate the spread of compassion in humanity, do you think technology can display empathy?

7. James Zerilli

- a. Response: Both "Phantom Images" and "As if" seem to me to be warning against this implicit trust that humans seem to be giving to technology. The former acts as a prophetic piece from 2003 analyzing the development of warfare – Even at that point the U.S. was trying to employ computer-controlled weapons (whether it was the truth or not), with the age of drone warfare just around the corner – and ultimately theorizing that war will eventually develop into a bunch of robots fighting it out on a battlefield removed from any actual human beings. Yet as of the writing's inception (and unfortunately even now) the capabilities of parties at war are often mismatched. Drones and computer-aided missiles from wealthy countries are fighting and killing actual people from those that are less so. The effect was likened to how factories are being slowly automated in the first world while the third world has more physical labor than ever, an extremely effective illustration of this idea in another aspect of life. Similarly, "As if" brings up the problems with algorithms and codes being the result of their data sets, often stilted racially whether intended or not. All this technology is sometimes treated with an amount of trust that it doesn't deserve. These lines of code aren't inherently more trustworthy, impartial, or accurate than human beings because they were *made* by human beings. If a data set is corrupt, the algorithm using it will be as well. This is a topic that was brought up in one of the Media classes

I took, and representation being affected due to data sets is a problem plaguing all kinds of matters, from the facial recognition software that the writing discusses to even Google searches.

- b. Pull quotes: "War always finds a solution."
- c. Pull quotes: "Even if no one wanted war any more, it would attempt to mutate into a war of automatons in a deserted field of battle."
- d. Questions
 - 1. It often seems that humans are trying to create artificial intelligence to make important decisions and manage complex tasks, often with the inference that it will be more effective than a regular human. Do you think we should even be exploring A.I. if the data one would be fed might have the same kind of problems discussed in these readings?
 - 2. It sometimes seems that developments like drone warfare are making it increasingly comfortable to commit atrocities without getting our hands dirty. Do you think the increased reliance on technology is part of a desire to shift blame for sometimes deadly mistakes, particularly in war?
 - 3. Do you think issues like the ones raised regarding facial recognition are on their way to being resolved?

8. Caitlin McGowan

- a. Response: Both, "As If" and "Phantom Images" compare technology to the human body. For example the facial recognition in "As If" responds to the language of photography and an eye the way we take mental images, blink the way a flash would and so forth. "Phantom Images" discusses the new form of photography even though the photos were taken from war. These readings both reflect on memorization and memory. Photographs capture images as we know and according to "Phantom Images" the technology used during wars within photography exemplifies the way for a missile target to be detected. The technology compared to facial recognition capabilities in order to see the persons reflection and what inspires them. The limitations of "intelligent" equipment possessed instances that were supposed to overcome the mechanisms of the human eye, but has setbacks programming was unable to work around. "As If" discusses how algorithms and theories are artwork as well. The theory of art and algorithms was interesting to see especially considered as art and the way we view things because today many social media platforms use algorithms when it comes to likes and views.
- b. Pull quotes

"Computer or machine vision is a broad term used to described methods for processing and analyzing high-dimensional data acquired from the "real" world in order to produce symbolic or numerical outputs."

"Challenged to rethink, insurgent black intellectuals and/or artists are looking at new ways to write and talk about race and representation, working to transform the image"

"We feel that it is immoral to design weapons whose construction presup- poses the death of the soldier using it, and thus - at least in our understand- ing- implying sacrifice as part of the mechanism of the weapon."

Questions

 - 1. What are some pros and cons of facial recognition?
 - 2. Is all new technology a form of art? In what ways have technological advancements helped artwork today?
 - 3. How will facial recognition affect our privacy features in the future.

Jessica Pan

- c. Response: In both readings, "As If" and "Phantom Images" connect technology to us, humans during many historical years and beginning to discover a new technique to create different forms of art with new different approaches to new ideas of creations. While reading, "As If" it was

mentioned how much technology has grown and developed over the years. When it also discussed it's the reflection in facial recognition footage, which is called 'Aspire Mirrors'. Therefore, it was created to make people think and be inspired around the space because you see your reflection. The article also mentions about-face recognition which practice as a tool to capture people's faces and can take their information. I think it's very creepy and now I'm feeling very cautious wherever I go. Because there's technology everywhere in our everyday life that sometimes you don't know what's happening, like there are mostly like some public spaces that you are being recorded. You just can't see it because the camera might be very small, and it's scary that something like this can happen in our world. Thus, "Phantom Images" provides an unusually unique perspective in views to the creation of photographic imagery. Therefore, they also use examples of phantom shots as a new technique in photography and it held a different view that was made up and that was highly debatable recognizing the background of certain phantom shots were being taken during the war.

Pull Quotes:

"These algorithmically organized particle structures emphasize an overriding problematic in computer vision research. In order to accomplish what is thought to be visual coherence it is functionally necessary to reduce any inherent levels of inconsistency or instability, as a human eye would."

"Today we are under no pressure to become radical materialists and to trace the manifestations of materialism in the structures of language."

Questions

- 1. How should we feel when there's many grown of different technology? Like should we be more cautious or worried? Since there's technology that scans people's face that can affect their privacy?
- 2. What are some new technologies that are being used for art?
- 3. How long do you think the Phantom photography would last?

9. Elyssa Feerrar

- a. Response: In both readings a cautionary tone is used to describe the vast and ever-growing capabilities of technology. In the first reading, *As If*, author Ramon Amaro centers his technology based discussion around an interesting project called *Aspire Mirror* conducted by artist Joy Buolamwini. The mention of this project started positively, as Buolamwini described her intentions behind the mirror were to "induce empathies" and "catalyze individual reflection based on a set of cultural values like humility, dedication, oneness with nature, harmony, faith, and self actualization". I found it fascinating that Buolamwini was trying to alter the connotation society has with the idea of reflection, instead of trying to see your physical self when looking in a mirror, the new goal is to search for your connection to nature and feelings of harmony or faith in your reflection. What happens when those are the things we are searching for? Aside from this interesting aspiration behind the artist's project, the issue they came across throughout their process was the focus of the text. Buolamwini noticed that every person's interaction with this technology were inconsistent as "the darker the skin tones or the more variant a person's phenotypical features are from the average white subject, the less likely the algorithm is to recognize that person's presence". To mitigate this flaw in coding, Buolamwini was forced to wear a white mask so that the technology could recognize her. Because the artist borrowed code from several facial recognition sources this weakness within the code that is highlighted only when people of darker complexion are interacting shows what she calls a "coded gaze...whoever codes the system embeds her views...limited views create limited systems". The text *Phantom Images* by Haron Farocki uses a different approach to further emphasize the new issues we deal with as technology continues to develop. Farocki uses the concept of 'phantom

shots', which they define as: " film recordings taken from a position that a human cannot normally occupy" to describe how technology is giving humans access to an incredible amount of data and capabilities, and allow us to collect information or see things in ways we could never do on our own.

Pull quotes:

- b. Buolamwini says she developed the Mirror to **induce empathies** that can help facilitate the **spread of compassion** in humanity. Another important goal of the Mirror is to catalyze individual reflection based on a set of cultural values like humility, dedication, oneness with nature, harmony, faith and self-actualization.
- c. **At the same time she reminds us that "whoever codes the system embeds her views... limited views create limited systems."** This "**coded gaze**," as she calls it, is a potential catalyst for political action and technical intervention. "Let's code with a universal gaze," she writes.

Questions

- 1. There are patterns in society and metadata collected that could never be analyzed or accessed without technology. This growing ability to retrieve information and see new things is scary to a lot of people, and causes many to worry about a loss of privacy. In what ways do you think we can regulate the capabilities of technology to prevent this infringement on privacy?
- 2. When thinking about the developmental potential technology has in the future, do you feel more worried or excited?
- 3. Should users of any form of technology, social media, or search engine expect any level of privacy? Do you ever feel that your internet use is interrupted or negatively affected by metadata collection?

10. Dan Gilmartin

- a. Response: It's interesting and disheartening that it seems the further we advance in terms of intelligent technology, the more problems we are faced with. I've been interested in algorithmic power, namely it's failures, for a little while now so *As If* by Ramon Amaro was especially interesting in how they describe the concept of computer vision, machine perspective, and the biases built into both. Both articles concentrate on machine driven perspective/perception, from the facial recognition algorithms of today, to the phantom images of early photography and cinema, to the politically driven and weaponized views of the Gulf War. I have thought a lot about the way algorithms and machines influence our perspective, but not so much about the fact that they have their own vision and perspective. It's daunting to think that someone out there is controlling what you do and don't see, and even more daunting to think that someTHING or some machine is. That's why as Amaro says, we need to go forward more consciously when creating these machines and realize the implications, and inaccuracies that we instill in them.
- b. "Little is known about the merits of these assumptions in real scenarios, not to mention there is an awareness that these assumptions must be simplified using probabilistic priors based on real scenes"
- c. "on the one hand they were supposed to conceal the inferiority of the Iraqis, on the other hand, they were supposed to expose the inhumanity of the allied war against them."
- d. Questions
 - 1. Do we need algorithmic data sorting and machine learning? Is it not more bad than good?
 - 2. To what extent is the creator of a machine learning algorithm responsible? Once it is out in the world, is the data to blame? Or the biases instilled in society already?

- 3. To what extent should we trust machine made predictions?

11. Your Name: Eric Gottshall

- Response: The methodologies for analysis being built into our early attempts at ai are somewhat prophetic and outwardly telling of our innate human biases. Placing certain social leanings upon an open mind happens daily in the practice of bringing new humans into the world. But taking something like an artificial intelligence system, something without the capability of declaration based on emotional preference, and embedding it with a mall equipped set of perceptive tools, seems somewhat more sinister and paradoxical. Because this only raises more questions than answers, I'll ask some of them here. What does it mean when an artificial system of deduction, or rather a system of deduction in its most primitive form, is only given a set of perceptive tools for understanding half of the humanities spectrum? In not so existential terms, does this make the system insensitive to some degree, or are its creators to be deemed prejudice? What does prejudice look like, and how does it shift, when the beings allocating such prejudice can't see otherwise?
- Pull quotes: "The Mirror could not detect details of her presence due to her dark skin tones and facial features. In order to validate the device and generate an alternative reality, Buolamwini had to first alter her existing appearance to make herself visible, and gain access to aspirational futures."
- Questions
 - 1. How does human born bias change once adopted by machine learning?
 - 2. How does the human experience shift when looked at through the gaze of the machine?
 - 3. Is predictive data simply an extrapolation on human bias, or can there be objective declaration in such a system?

12. Sara Reed

- I think we see ai as a machine that has a perception that is separate from humans because of its capabilities beyond ours in terms of crunching mass amounts of data and creating an output. However, ai is coded and created by humans, meaning it is not completely objective, but rather carries human bias in its code. I found it interesting and how Buolamwini combatted this by having to alter her own appearance, shedding light on the blatant lack of diversity that is considered in technology and ai. We often think about how technology can cater to us as an aid in seeing or experiencing things differently, but in order for it to accomplish this it also requires a perspective of its own. Similar to the phantom images mentioned in Farocki's reading, visuals beyond human capability were being produced, but were influenced directly by human intervention.
- Pull quotes

"This 'coded gaze,' as she calls it, is a potential catalyst for political action and technical intervention. 'Let's code with a universal gaze,' she writes."

"Codgers like Buolamwini speak directly to this problem of the erasure"
- Questions
 - 1. Can human bias in coding be unlearned or overcome more easily than in humans?
 - 2. Will future technology imitate humans and their innate bias more than it does now as it becomes more advanced?
 - 3. Is facial recognition inherently bad?

13. Krystal Lau

- Joy Buolamwini created the *Aspire Mirror*, a project that was used to "induce empathies that can help facilitate the spread of compassion in humanity." The Mirror works to show individual reflection based on cultural values, but the mirror came into an error of not detecting darker skin

tones. Computer vision is interesting as it detects and interprets the array detected in an environment, but in order to fully see the world the algorithm must simulate the complexity of a human optical system. Since facial tracking often fails to detect those of darker skin tones, “An undetectable black technical object is, in this instance, equivalent to what I call a “machinic non-existence,” or the formation of an empirical reality that—as Sylvia Wynter articulates in her critique of Western humanism—is a projection of a racialized substance that is metaphysically sustained by the Aristotelian embodiment of normalcy.”

- b. “By regressing complex environmental data into a generalized pattern, the lived and multivalent specificities of black lives are represented “as if” the visual matrix maintains no connections to historical category, stereotype, or a moral imaginary.”
- c. Questions
 - 1. Is facial recognition technology right now bias to only pick up certain features more than others?
 - 2. How do you think facial tracking technology is improving to be more inclusive (or not)?
 - 3. Are you optimistic or pessimistic about the future of facial tracking technology?

14. Katie Makar

- a. Both Phantom Images and “As If” speak of experimental technologies and technology’s advancement as a whole. I thought the notion of phantom shots, or images that could not be taken from a position that a human would normally be in, was particularly interesting. In the context of the article, phantom shots were generally pictures from war settings. These photos eventually, so removed from their original contexts, could be used to spin the war in a way that was beneficial to the United States. This got me thinking of the ways we see so-called phantom shots today, considering the existence and relative accessibility of drones. How often do we see news outlets, or even the president himself, spinning drone photos to fit their narrative — like when Trump used edited photos to say his inauguration had the highest attendance in history. Photos in general are often removed from their original contexts, especially in the news, and I think it is interesting and also extremely disheartening to see how this trend has evolved since the 1980s.
- b. “Bombs with cameras in them offer no room for an independent observer. “
- c. “But now the arms industry itself has a hard time justifying its new products. It lacks an enemy that could produce anti-ballistic weapons against it, which would then require anti-anti-ballistic weapons.”
- d. Questions
 - 1. Will something like deep fakes become the new “phantom shot?”
 - 2. Are phantom images still used in their original context today?
 - 3. Will technological advancements keep pushing the photos we take further and further from their original contexts?

15. Matt Simonetti

- a. Response:

The cruise missiles which developed in the 1980s, and allowed for “suicidal cameras” to record their own destruction, were also known as “intelligent weapons.” This sounds like something George Orwell would have defined as “Newspeak” – a dumbed-down version of a language which rendered certain words obsolete in order to keep the masses from communicating complex and subversive ideas. Although “Intelligent weapons” may not be actual newspeak, the term clearly takes the violence out of deadly militaristic action, and inserts the idea that the weapon, itself, is ultimately making a correct and sound decision. And it’s these weapons we trust to carry out a particular task.

In *As If*, author Ramon Amaro discusses the incorrect decisions made by facial recognition programs. Apparently, this technology is not accurate at all, because people of color need to wear a “white facial mask” in order for their own facial features and dark skin tones to be recognized by the program’s algorithms.

As we head more and more into Orwellian territory, technology is being used—ever increasingly—to prevent crime, the most familiar example of this being cameras installed seemingly everywhere one can imagine. While this is old news, facial recognition technology is not, and will probably be used legitimately, and sooner than we think, to carry out particular tasks, just as “intelligent weapons” do.

b. Pull quotes:

“The drive towards uniform coherence works to circumvent any substantial consideration of the algorithm’s reliance on historical category —namely, what features represent the categories of human, gender, race, sexuality, and so on.”

c. Questions:

- 1. As potential for error is clearly possible with facial recognition technology, could this potential for error be weaponized as well?
- 2. Will technology like this ever *be designed* to victimize anybody?
- 3. What is the “white facial mask?” Is it an actual mask, or some kind of software that provides a digital filter?

16. Sherry

- a. In the reading *Phantom Images* by Harun Farocki opens up with referencing war photography, specifically photos from the 1991 allied war against Iran where the photos were taken from a flying object, such as a helicopter, plane, and drone. The author goes into stating how in the 1920s in the US, technology opened up yet another door for artists and human development through allowing access into an angle of photography humans normally cannot occupy, referred to as phantom shots, hence the name of the text. This new perspective could be presented with the term “intelligence weapon” as new data and perspective of human life can be recorded in a more modern way with this new and fast growing technology. Due to how “images are produced by the military and are controlled by the military and politicians”, war photographs were skewed to provide propaganda to the public. Since civilians are on the outside of the action, they can only believe what they see in photographs of what’s going on with the war. But if those photos are skewed and providing a bias and one sided story- then the civilians are lead to believe one thing with disregard to the other narrative. This is complex and dangerous because war is very based on politics and power with little regard to morals and ethics at times.
- b. In the reading *As If*, Aspire Mirror was a device created by Joy Buolamwini in 2016 for the user to “see a reflection of [their] face based on what inspires [them] or what [they] hope to empathize with.” This facial detection actually proved to be inherently flawed in how it interpreted image data since it couldn’t even correctly detect the creators facial features due to her dark skin tone. In order to test the device, she had to wear a white face mask. To me, I was surprised that she even bothered testing it after it couldn’t detect her natural features because with that flaw there is nothing to test- the device doesn’t work if it exclusively works on white people/ inherently biased- unless it was designed for white people to use, but that doesn’t seem to be the case. If most facial recognition was and is being created by white people then there may be an inherent and implicit bias in the code. It’s almost as if a form of “racism” is being embedded into machinery/ data learning/ AI.

- c. " Films or photos that were taken in order to monitor a process that, as a rule, cannot be observed by the human eye. Images that appear so inconsequential that they are not stored - the tapes are erased and are used again. Generally the images are stored and archived only in exceptional cases, but exceptional cases one is sure to encounter. Such images challenge the artist who is interested in a meaning that is not authorial and intentional, an artist interested in a sort of beauty that is not calculated."
- d. "For some time now the critical challenge for black folks has been to expand the discussion of race and representation beyond debates about good and bad imagery. Often what is thought to be good is merely a reaction against representations created by white people that were blatantly stereotypical. Currently, however, we are bombarded by black folks creating and marketing similar stereotypical images. It is not an issue of "us" and "them." The issue is really one of standpoint."
- e. Questions
 - 1. Will facial recognition prove to actually be biased?
 - 2. Will algorithms and machine learning dehumanize people? Are they inherently racist in how and who is creating them?
 - 3. To what extent can we trust machines whose code is input by humans? If something is input incorrectly will it prove to be detrimental?

17. Sarah

- a. Response

"As If " Facial recognition has been a hot topic to implement to technologies and apps. There's fear about it because of the potential invasion of privacy. You shouldn't be punished or afraid when you didn't do anything wrong. "Aspire Mirror" seems to take facial recognition even further and it seems both horrifying and brilliant at the same time. Having a computer recognize your emotions and possibly predict your thinking is terrifying. I disagree with Buolamwini, claiming the code inherited the programmer's "limited" beliefs. Beyond Reality Face NXT is not open sourced, it possibly had a limited source of test cases (human faces) to test from. If it was given more diverse faces it would learn how to differentiate the emotions from them. Another reason for the API/library not recognizing facial features from a black face was it had trouble figuring out the contours of her face because how closely the color of the pixels were dark. The algorithm was made to define contours and use them to place plots on the face. Image recognition is difficult when there are gradual darker colors present in an image, because there's no distinct differentiation between colors in the pixels. The code had no goal of being prejudice against the black representation. Buolamwini is better off creating her own API if she's still having difficulties using Beyond Reality Face NXT. There might be another better solution to solve this instead of looking for a dark pixel/contour.
- b. **"Phantom Images"** The author Farocki brings up that technology is being used to bring viewers to places that are inhospitable and hostile. He used imagery from the Iran Wars as examples.
- c. Pull quotes

"machine perception functions by stabilizing and simulating environmental phenomenon in order to grasp the fundamental basis of human and other sentient-based actions, mimicking behavior and managing tasks thought to exceed human capabilities (As If)."

 - "Almost all technical representations which maintain that they only represent the operative principle of a process have a large share of mystification in them (Farocki)."
- d. Questions
 - 1. What would be a better algorithm to use than comparing colors in an image?
 - 2. When will computers be implanted in our eyes be commercialized?

- 3. Buolamwini claiming the code to be racist is fair, or unfair?

18. Vicky

- It's funny that even machines can be seen as "racist" and that people are trying to develop these machines to be more aware of this flaw. However, the capability to look past people's races is far ahead in the future, and it becomes humorous that the same creatures that have this issue are trying to create something that is human-like but without the mistakes. Humans are trying to replicate their vision capabilities on to machines, when their ability to recognize is replaced with unavoidable judgement of the surface level.
- "In terms of the former, machine perception functions by stabilizing and simulating environmental phenomenon in order to grasp the fundamental basis of human and other sentient-based actions, mimicking behavior and managing tasks thought to exceed human capabilities. This is seen, most readily, in robotics inspired by the living, both aesthetically and functionally created to solve complex problems thought to be out of reach of most human."
- Questions
 - 1. Why is having machines recognize the faces of all races such an emphasized goal?
 - 2. Is it possible to program machines to have better vision than humans?
 - 3. More than trying to change the way machines recognize and see, what can we learn from this to improve society?

19. Tyler Lee

- Lack of representation and deficiency of normalization of marginalized groups immediately causes an uproar. Yet, the fact that the computer has difficulty in differentiating even the face of a person creates theories that don't necessarily "fix" the diversity problem of the computer, but brings into focus the "over-dependence on mathematics as truth" and the artificial perceptions we create (not to mention the machines dependence on environmental conditions that need to be met). We shouldn't try to force inclusivity on a mechanized object, especially one that currently does not have the capability of fully synthesizing and understanding the experience of human life and existence. Computers are all about creating order, going by rules, and organizing complexity into categorizations. Human experience is so different between every individual and it questions our obsession as a scientific society to try and cram all of that complexity within a machine whose affordances don't allow it to capture the nuances of race, sexuality, and gender—much less the inner workings of the human mind. In the same vein, we tend to take recordings as truth. Of course, during the Gulf War there was no photoshop or digital imaging technology, but photos were still selectively taken. What was directed to the people was war raged land without the presence of people, instantly dehumanizing the entire event. Film and animation that showed missiles falling in an overly cinematic point of view creates detachment and dissociation from the obvious horrors of war. In both Buolamwini's work and in phantom images, machines play a far bigger role than they should in people's perception of the world. A camera attempts to capture the detail and colors that the human eye can, but it compresses and blurs. The photograph isn't as complex in material as what the brain produces when it processes an image. Likewise, a computer cannot replicate the precise order of actions that humans can when they feel or learn.
- The supposed truth that we perceive through electronics is a highly held, but ultimately a false belief in thinking that computational algorithms and mathematical equations have even an ounce of real, sentient intelligence.
- "Facial detection operations are not limited to blind trials. They are employed to solve a range of economic, social or political objectives which rely on a greater coherence of individuals and the environment for operational efficiency."*

- d. *“What is shown in these programs comes neither from the micro- nor from the macro-cosmos, but rather from the middle level; its lower boundary line is the close-up of the human face, its higher level a street block of houses. This is the filling, so to speak, in the picture of the cosmic sandwich.”*
- e. Thoughts on the rising call for the banning of facial recognition technology?
- f. What is it about a photograph, especially in an age of digital modification, that gives it the presence of truth?
- g. Do you think that there will be a time where seeing is not believing?

20. Rushika Raman

- a. Response: The reading, “As If” talks about a project done at MIT which uses facial recognition in combination with AR images of futuristic selves/masks to draw sympathy and humility from one human to another. The reading called “Phantom Images” refers to a time of war in the early 1900’s in which cameras on missiles and bombs give humans a different perspective on an attack. The reading compares the point of view to that of a child’s video game but also says that it provides some new information on what is actually happening. What they might be referring to is that we often hear of bombings, but we never truly see them happen. In a way these two readings seem to be about extracting overlooked emotions of pain and sympathy through advanced computer technology. “Phantom Images” talks about a “common view” which in my mind is a loaded term (no pun intended) because what’s common is constantly changing and is not always determined by the whole, but the superior few in society. Similarly, the digital masks from “As If” are bc actually away to break social standards so that we can all view our ideal selves and each other regardless of social status. Overall, technology has advanced to incredible heights and even now has the ability to conjure important feelings in humans that we couldn’t bring to our attention ourselves.
- b. Pull quotes:
 - “The film footage from a camera that is plunging towards its target, a suicidal camera, stays in our mind.”
 - “Buolamwini says she developed the Mirror to induce empathies that can help facilitate the spread of compassion in humanity. Another important goal of the Mirror is to catalyze individual reflection based on a set of cultural values like humility, dedication, oneness with nature, harmony, faith and self-actualization.”
- c. Questions
 - 1. Where will the advancement of technology bring us in 10 years?
 - 2. Do visuals like those in “Phantom Images” have to be seen in order for these point of views to be known?
 - 3. What do you think are the negative repercussions of facial recognition in combination with virtual reality?

21. Your Name

- a. Response
- b. The battlefield is uninhabited. When you see an entire roll of such images you cannot help but think that the war will continue on well after humanity has disappeared from the face of machines. (...) Today you cannot get footage from the military archives in which cars can be seen, footage that would force you to conclude that humans were indeed present at or near the target.
- c. Questions

- 1.
- 2.
- 3.

22. Andrew Burger

- a. I read the article Phantom Images by Harun Farocki. The article mostly talks about the relationship between war and filmmaking. The beginning it goes into animated war films, and how animation tried create shot compositions filmmakers could only dream of. The article then goes into depth about various wars, and talks about the various pictures and propoganda the government would use to entice people into the war. The second article I read felt with a new project where a person puts on a mask, and using facial recognition, it changes their face to desired traits during a certain time period. It introduces the problems with this by saying that the creators are using prewritten code meant for other things, and facial recognition in general is flawed in the sense that it only works on Caucasian people.
- b. "The cold war made it possible for over 40 years to write off rockets, tanks, jets and planes, and ships that were never used materially and were sometimes morally worn out already before they were completed."
- c. "While Buolamwini notes that her failed Mirror is telling of the functional limitations of computer vision and machine perception, she argues that the problematic is largely one of representation. For Buolamwini, a failure to recognize black faces as coherent human objects demonstrates 'a lack of diversity in the [data] training set [that] leads to an inability to easily characterize faces that do not fit the normal face derived from the training set.'⁴ "
- d. "By regressing complex environmental data into a generalized pattern, the lived and multivalent specificities of black lives are represented 'as if' the visual matrix maintains no connections to historical category, stereotype, or a moral imaginary."
 1. The article talks about how it's hard to recognize the faces of people who are black, however, it never specifies any other races. I was just wondering if this is a problem for Asian people, Polynesian people, etc.
 2. Both articles talk about the problems with increased technology.
 3. The article talks about how advances in technology can lead to better security, however, as shown by the presentation the more technologically advanced a system is, the easier it is to hack into it. Do you think we'll ever see a regression on technology and security because of this?

23. Sheila Leonard

- a. The reading, "Phantom Images", by Harun Farocki, is about how new technology in war gives outside people not in war an understanding what exactly goes on and sees firsthand what is happening from the viewpoint of soldiers and also the technology itself. Even when the pictures are extremely graphic and very intense, it successfully brings a human connection from viewer to victim even when they do not know who the people are. Death is one subject that everyone understands as something horrible, especially innocent victims, and is affected by it whether they know the person or not, therefore, these images taken by the new technology help people connect from war even when they're not there. Further, the reading, "As If", by Ramon Amaro, talks about a person using the program created at the MIT Media Lab to see their reflection on the website as what inspires them or what they emphasize with to give off a feeling of shapeshifting. "The Mirror", the program created, was made to help spread compassion in humans. Both articles reveal that new technology created is trying to induce feelings of connection and compassion in humans, which is very interesting because many people believe that technology is making humans turn in the opposite direction of losing connection between humanity.

- b. "The gesture of an autopsy is an attempt to recreate the individual history of the victim"
- c. "In terms of the former, machine perception functions by stabilizing and simulating environmental phenomenon in order to grasp the fundamental basis of human and other sentient-based actions, mimicking behavior and managing tasks thought to exceed human capabilities"
- d. Questions
 - 1. Was the Mirror supposed to show self doubt as a reflection of a black person wearing a white mask?
 - 2. Does the Mirror help the tech community realize how to code for all races and the flaws that can come with not making sure it works for everyone before releasing it to the public?
 - 3. Does the Mirror achieve its goal of bringing compassion and connection to humanity or actually further apart because of the program not including all races?

24. Your Name

- a. Response
- b. Pull quotes
- c. Questions
 - 1.
 - 2.
 - 3.

1.