

Algorithmic Equity Toolkit



DSSG Student Fellows: Corinne Bintz, Vivian Guetler, Daniella Raz, Aaron Tam

Advisors: Bernease Herman, Mike Katell, Peaks Krafft, Meg Young

Technology

FBI, ICE find state driver's license photos are a gold mine for facial-recognition searches

A cache of records shared with The Washington Post reveals that agents are scanning millions of Americans' faces without their knowledge or consent.



Facial recognition software mistook 1 in 5
California lawmakers for criminals, says ACLU

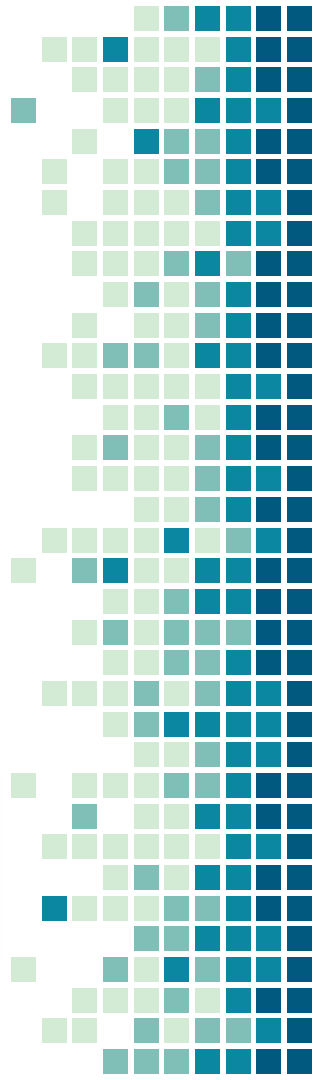
Machine Bias

There's software used across the country to predict future criminals. And it's
biased against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica

May 23, 2016

**Civil rights activists up in arms over Amazon update
adding fear detection to facial recognition tech**



What are surveillance and automated decision systems (ADS)?

Surveillance

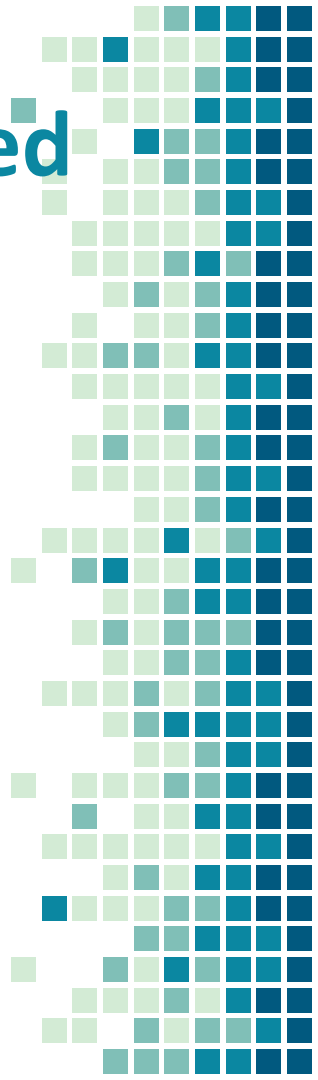
(e.g. collection of drivers license photos)

Surveillance systems collect data about the mass population.

Automated Decision Systems (ADS)

(e.g. facial recognition software)

Use the collected data to make decisions.



Up Next:

Daniella Raz

2019 DSSG Fellow

On related legislation
and stakeholders

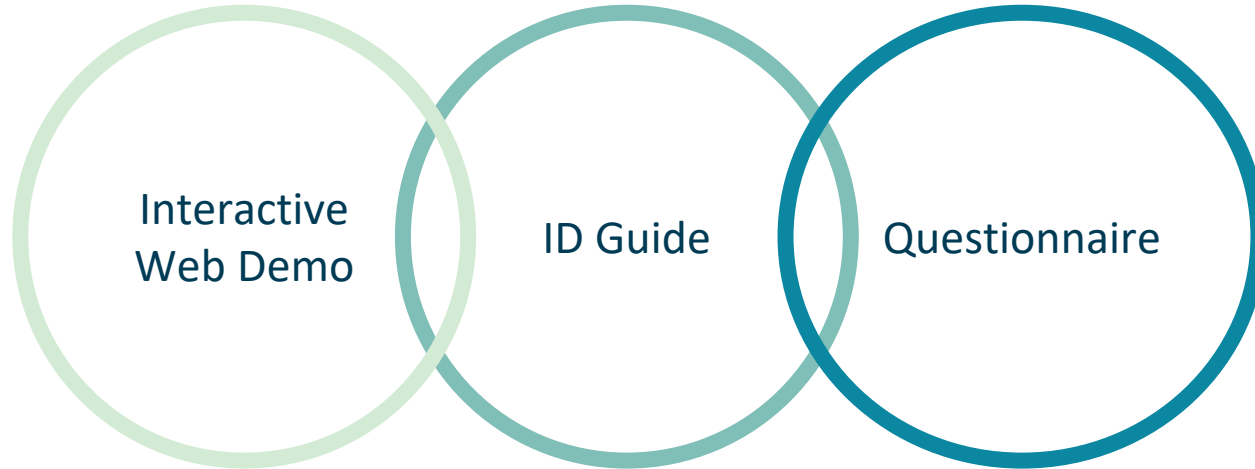


WA Legislation HB 1654 & 1655

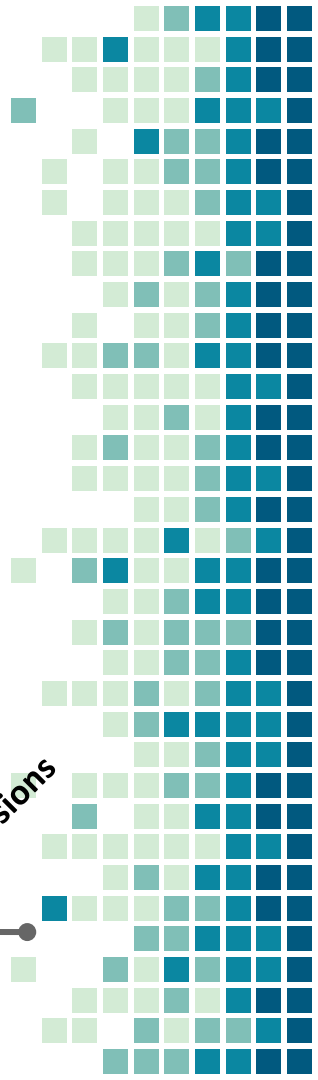
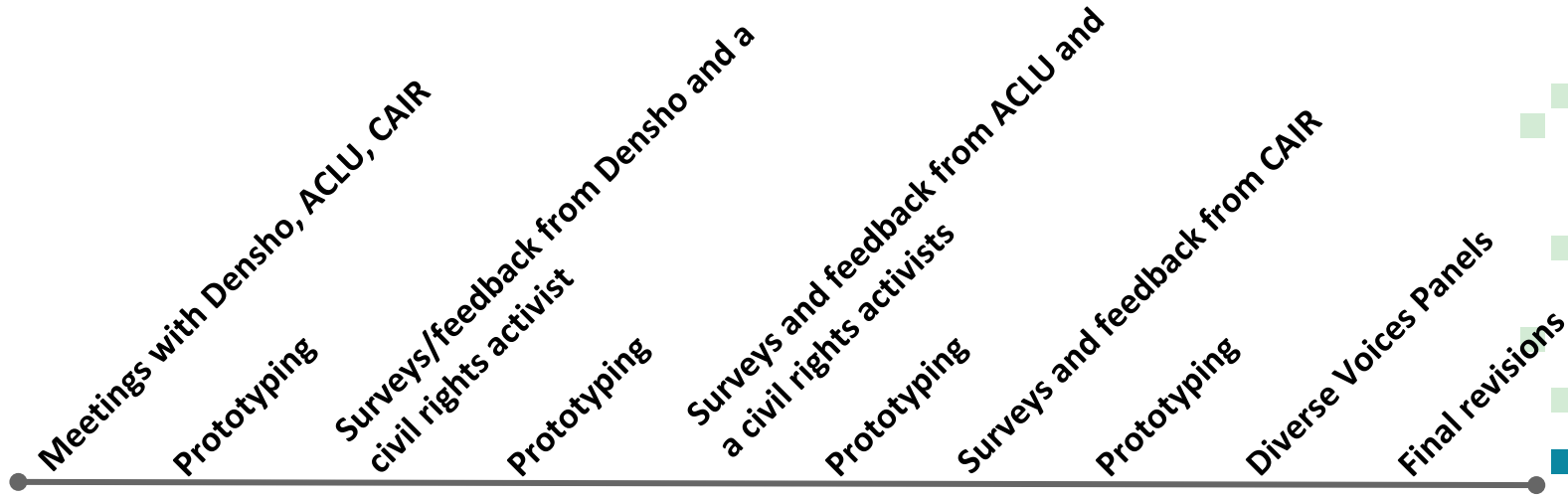
- Managing facial recognition and automated decision systems



Toolkit

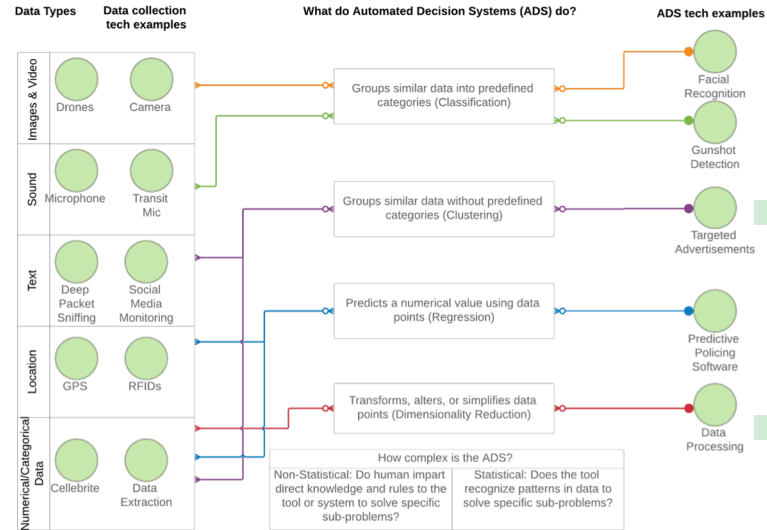


Participatory Design Timeline



Participatory Design

- Accuracy -> Data scientists
- Usefulness and Clarity -> Civil rights advocates



Participatory Design

What is your level of familiarity with automated decision systems/artificial intelligence? How would you define an automated decision systems/artificial intelligence?

6 responses

low level. Use a neural network for img processing. system that uses an algorithm to determine responses given an input.

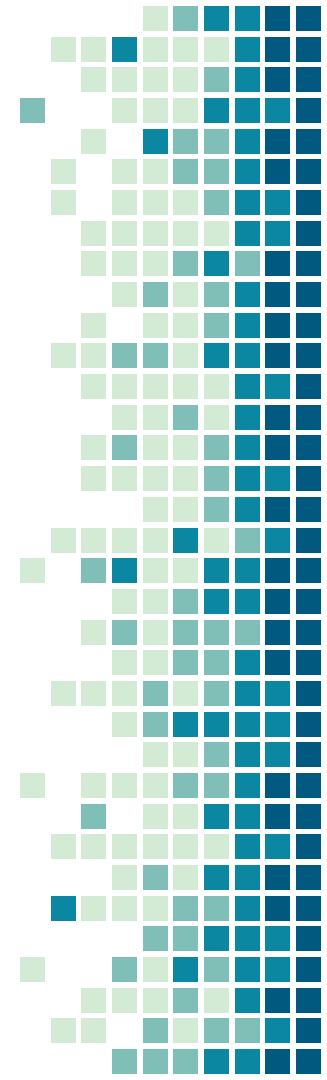
very little familiarity. honestly not sure how to define these terms, but perhaps systems that collect/compile data and make decisions based on that data with little/no human oversight.

Somewhat familiar. ADS/AI are software systems that rely largely an infrastructure of generated algorithms primarily derived from machine-learning approaches, rather than the traditional explicit logic written by human programmers.

Not too familiar. I'd define it as technology that is capable of learning, without any person reprogramming it

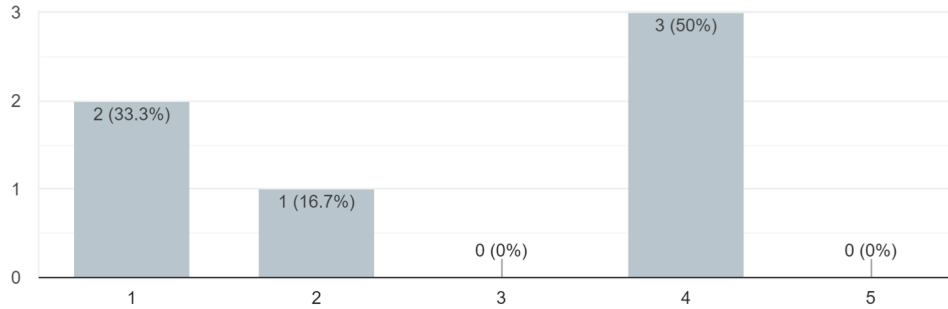
Machine learning. AI slowly learns by probing, trying things, and maintaining relevant knowledge. It's my understanding that IBM's Watson is often used

basic understanding. I know more about how these broadly relate to social justice issues. to my understanding, these systems use data to provide results/answers/etc



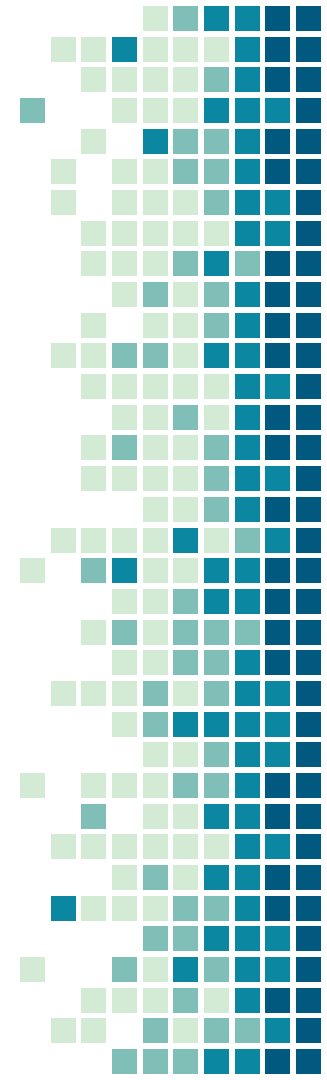
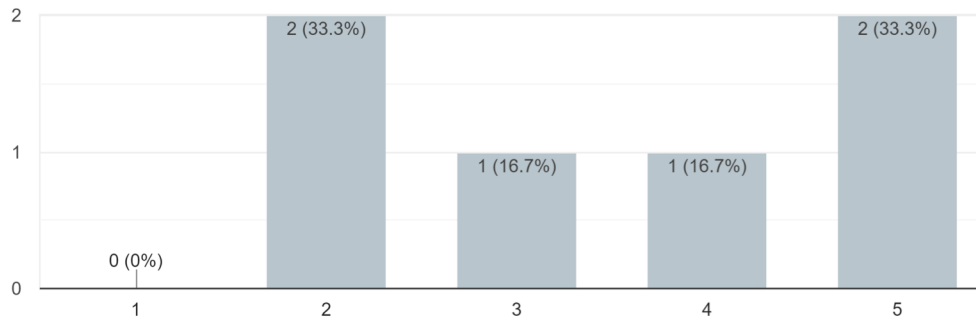
How comfortable would you feel testifying on government use of a new automated decision system/artificial intelligence?

6 responses



How comfortable would you feel testifying on government use of a new automated decision systems/artificial intelligence after reviewing this toolkit?

6 responses



What additional questions do you have about automated decision systems/artificial intelligence?

3 responses

What regulations are there on artificial intelligence systems right now? Think people assume that gov't is more interested in regulation than they actually are.

What laws exist to regulate the use of AI (ie, one example mentioned that Amazon recommends a 95% confidence interval when using its facial recognition tool, but there is no law dictating that law enforcement can only make decisions if the CI is reached)? To what extent should AI be used if it's so imperfect? In what situations is human judgment more accurate and in what situations is AI more accurate? How can you make AI less biased, and can that be programmed or will it have to be human judgment

none

HOW alg. sys. affect our communities: Expert Panel: Race + Social Justice Activists

Gap:
 Q: about what tools city uses
 Our communities are targeted and aware of being targeted and wanted
 Info about how tech is used is not shared
 Q: about what data points has access to
 Data collection done by private sector
 Need transparency about what tech is in use (ex. garbage street)

Feedback on Questionnaire:
 Wants the questionnaire placed first on subject
 Getting Q: background on what the survey is for
 How does community feel in the survey
 Who helped the tool, who made it?
 We don't see how information that was shared other info, if we're getting that
 They weren't asked enough data

Feedback on Toolkit as a whole:
 Learning pieces
 Getting a flow
 Present it in a way that's not overwhelming

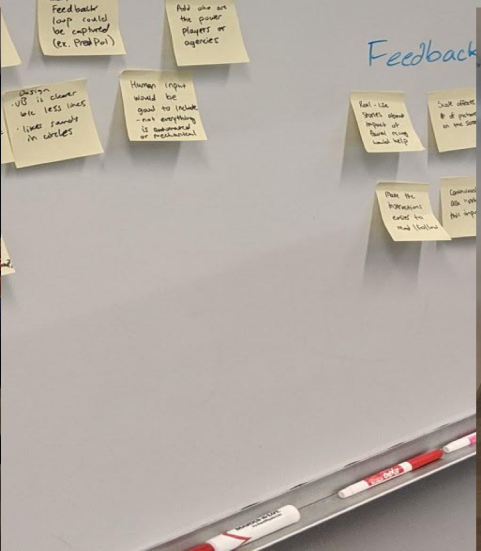
AGENDA
 4-4:00: Settling in
 - Honoring
 - Recording
 4:00-4:30: Introduction to presentation
 4:30-4:45: Open discussion
 *How do algorithms...

Feedback on

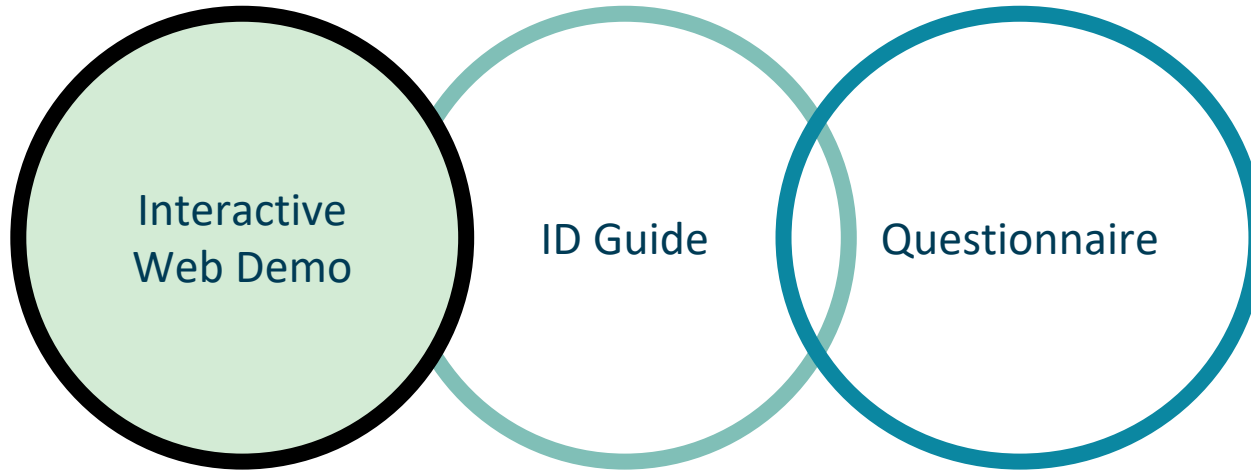
Diverse Voices


Feedback loop could be captured (ex. Proton)
 Add who on the power players or agencies
 Human input would be good but not include everything - is supplemental or mechanical
 Question: it is clear, we're less clear, it's more about in context

Feedback
 Get the specific about how it's being used
 Get the specific about how it's being used
 Get the specific about how it's being used

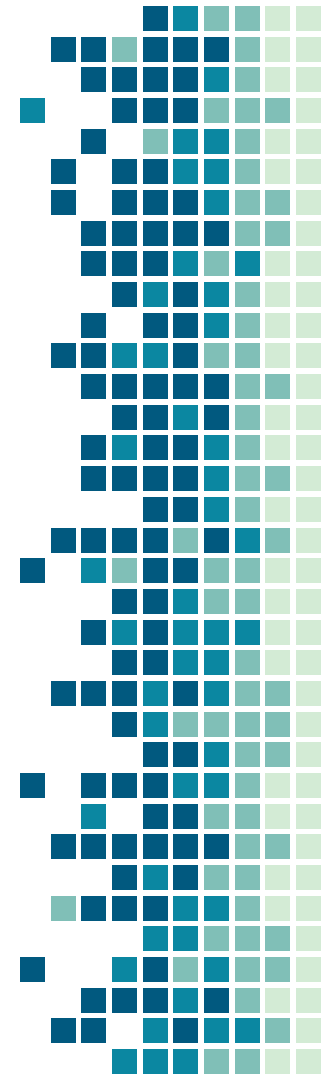


Toolkit: Interactive Web Demo





Fixing inaccuracies
does not solve the
problem



facial recognition technology would only contribute to this issue. Speaking specifically on the use of facial recognition technology to target undocumented immigrants, Mora-Villalpando emphasizes, "We believe that Amazon is harming our communities if they continue with their push of selling this software [facial recognition] to ICE."

Current subject



- LeBron James
- Lisa Leslie
- Paris Hilton
- Jennifer Lopez
- Aaron Peirce
- Jacqueline Edwards
- Kelarna Chavis
- Jason Campbell
- Katie Couric
- Vicki Zhao Wei



Jacqueline Edwards
0.881



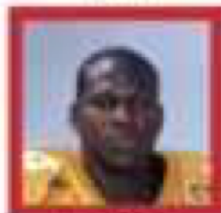
Jason Campbell
0.894



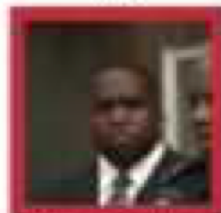
Julius Erving
0.778



Marquis Ertz
0.781



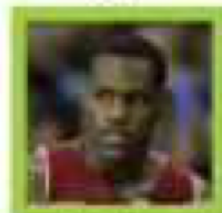
Julian Sella
0.845



Keonte Pigeaux
1.058



Larry Thompson
1.049



LeBron James
1.384

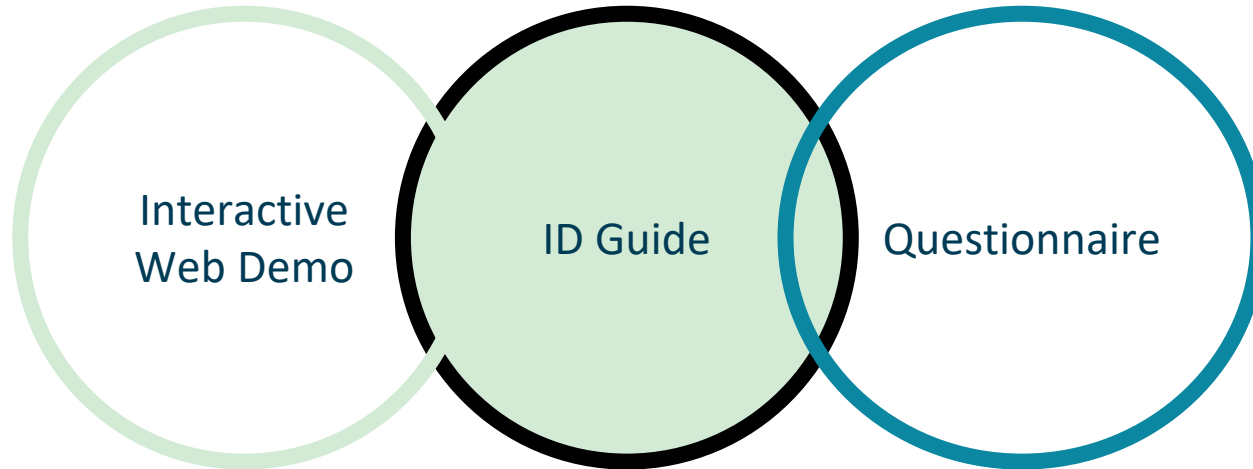


Threshold: You have selected a minimum similarity score to qualify for a match as 0.7

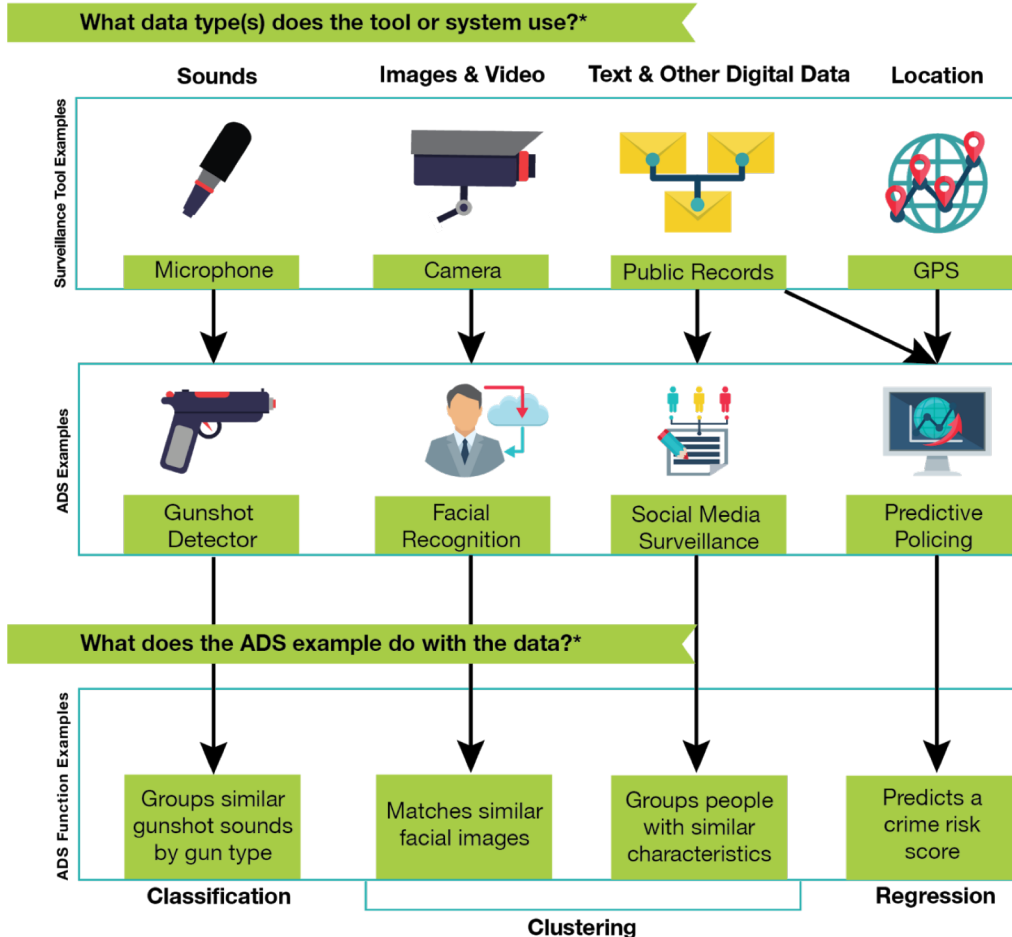
Case Studies:

ICE Uses Facial Recognition To Scrub State Driver's License Record: In July of 2019, researchers at Georgetown University Law Center found that Immigration and Customs Enforcement (ICE) agents mined millions of driver license photographs in search of facial recognition matches to target undocumented migrants who have legally obtained driver licenses. ICE did this illegally, as they did not have congressional approval to access DMV databases of driver license photos. In this case study, we used facial recognition technology to identify and document instances of this, and present a summary of the facial recognition software used.

Toolkit: ID Guide



Identifying a Surveillance Tool or Automated Decision System (ADS)




If the tool or system only collects, records, or stores data then it is a **Surveillance Tool**.
A surveillance tool is any electronic device, software program, or hosted software solution that is designed to be used for the purpose of surveillance.



*Note: the data types, ADS examples, and functions in this guide are not exhaustive, and some tools may use a combination of different data types or ADS functions.

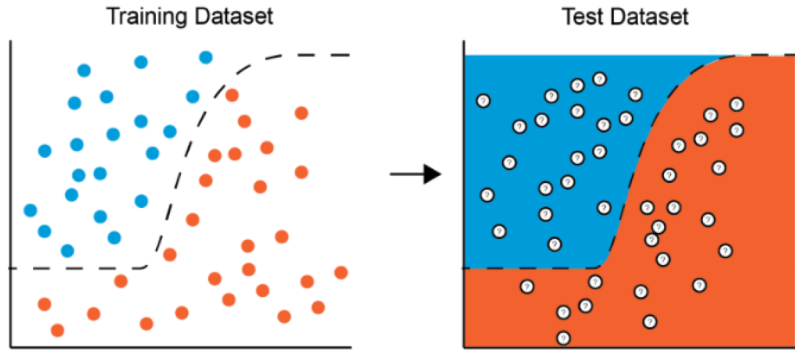
If the tool or system also performs any of these functions with the data then it is an **Automated Decision System**.
An ADS is a computerized implementation of algorithms which are used to assist in making decisions.





Gunshot detection

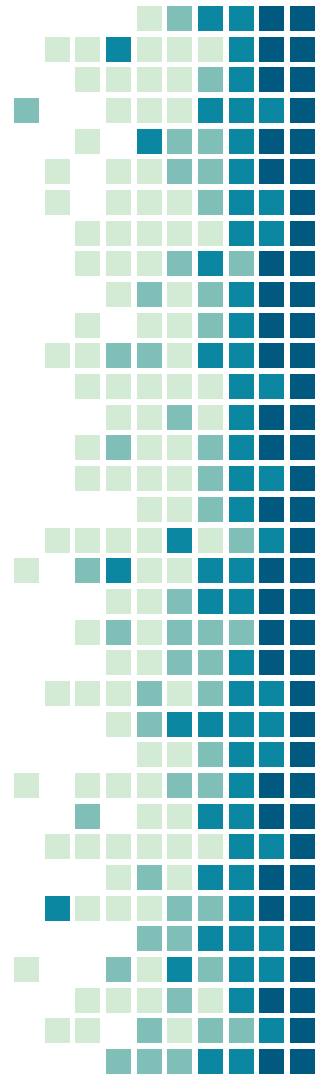
Background: Gunshot detectors recognize the sound of gunfire and can pinpoint its location. Originally developed in the mid-1990s, early gunshot detection tools quickly



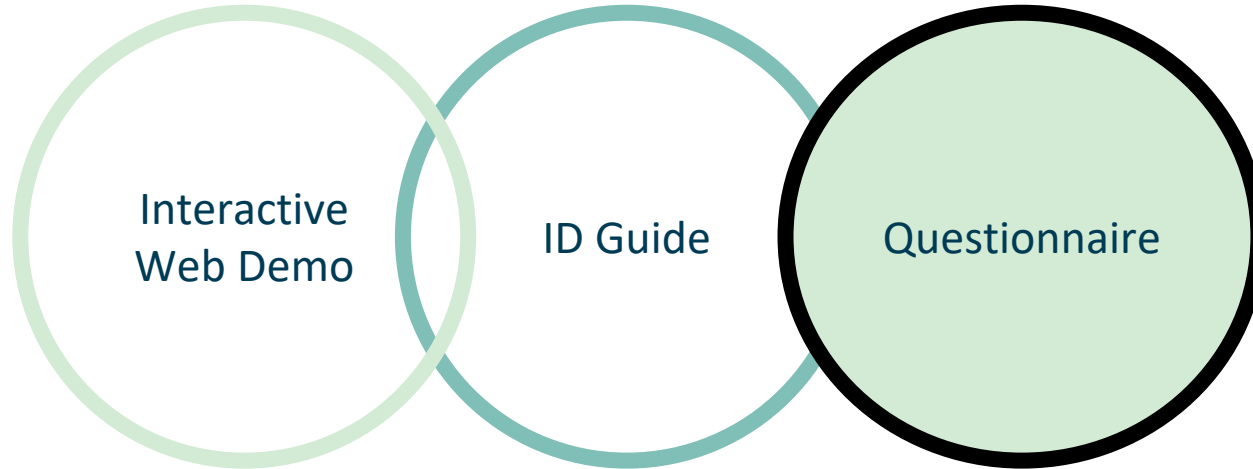
- Rifle
- Handgun

A gunshot detection algorithm needs to be trained on human-labeled data before categorizing new gunshot sounds.

How it uses classification: The gunshot detector algorithm uses a “training dataset” of



Toolkit: Questionnaire



Up Next:

Vivian Guetler

2019 DSSG Fellow

On questionnaire
component & harms



Use Case Example: How Law Enforcement Uses Facial Recognition Software



Use case scenario: you have attended a meeting held by the local police officials about the use of facial recognition technology. Law enforcement mainly use facial recognition technologies for two purposes: **facial verification**, to confirm someone's identity and **facial identification**, to identify an unknown face. They then tell you how they perform facial identification for different tasks using facial recognition software.



Types of Face Identification

Stop & Identify

On patrol, an officer can take a photo of someone who appears of concern identify themselves, then compares the photo to their facial recognition database. The photo is also added to the database.



Arrest & Identify

When a person is arrested, their mugshot is taken. The mugshot is then added to the facial recognition database and shared with other agencies such as the FBI.



Real-time video surveillance

When police are looking for an individual, they upload the image of that person to a "hot list". A facial recognition system then runs images taken from live feed cameras and compares it to the hot list. Everyone walking past the security cameras are subjected to this process.

Source: <https://www.pewresearch.org/fact-tank/2019/07/23/facial-recognition/>

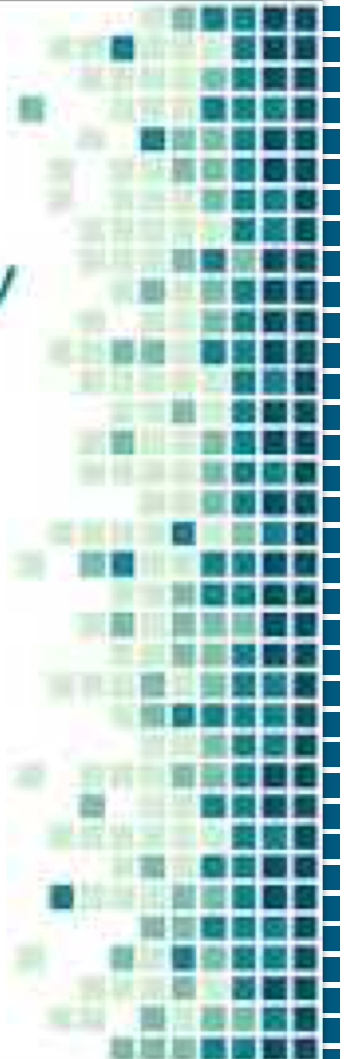
Simple questions you can ask the officials about facial recognition technologies:

Impact: who is most likely to be affected by the use of the technology? what are the effects?

Appropriate Use: what is the primary use of the facial recognition tool? is the technology compatible for its intended use?

Transparency & Accountability: is there information about the data used for the facial recognition software? how was the software's algorithm designed? who should be held accountable? what are the accuracy rates for age, gender and race?

Use case example: *How Law Enforcement Uses Facial Recognition Software*



THANK YOU!

Any questions?

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