# CIDM-6303 ETHICS

**Ethics**: the discipline dealing with whatsis good and bad and can be set of moral principles.

**Focus on three cases below**

1. Feedback loop: This can occur when models is controlling the next round of data being collected, those data are returned quickly and becomes flawed by the software test.
2. What happens when algorithm cuts health care. Here software is used to determine poor people with benefit which is used in half of the 50 states in the United States, example here is in Arkansas, there was a bug in the system that cut health care for people with cerebral palsy and diabetes.
3. Biased in advertising.

**Why does it matter?**

1. Ethics matters because without it can lead to Dangerous Data and collection of harmful data.

This shows how technology can be used for harm referencing the role of data collection in genocide 1937 where IBM partner with the nazis to create a code on how people are killed and their race.

**Questions we need to ask ourselves.**

1. How would you feel if you discovered that you had been part of a system that ended up hurting the society.
2. Would you even know?
3. Would you be open to finding out?
4. How can you help make sure this doesn't happen?

**Unintended consequence when using technology.**

Considering how technology can be used.

1. It can be used by trolls and harasser.
2. By authoritarian government.
3. For propaganda and disinformation.

We can reference the example of a Volkswagen engineer that was imprisoned in the diesel cheating case.

**Recourse and Accountability**

Referencing the health care case in Arkansas where the Algorithm cut off health care for people with diabetes and cerebral palsy, here no one take accountability for the incident hence making todays algorithm system an extending bureaucracy.

**DATA CONTAINS ERROR**

Citing different scenario where data contains significant error for example.

1. In California gang database which is plagued with errors unsubstantiated entries of 42 babies which were less than 1 year at the time were entered into the Database.
2. Mistakes in the credit report by all the three-credit bureau.
3. Facial recognition error leading to the arrest of a 14-year-old with the NYPD.

**Feedback loops and Metrics**

Problem with metrics is a big problem for AI.

Over emphasizing metrics lead to the below problem

1. Manipulation
2. Gaming
3. Myopic focus in short term goals

Example is England public health system targeting around ER wait time leading to

1. Cancelling scheduled operations to draft extra staffs to the ER.
2. Turning stretcher into beds putting them in hallways and others

**Types of Bias**

1. Representation Bias
2. Evaluation bias
3. Historical bias
4. Measurement bias
5. Racial Bias
6. Human bias
7. Algorithm bias

**Why does algorithm bias matters?**

1. Algorithm are used differently than human decision maker.
2. Artificial intelligence system is cheap.
3. Artificial intelligence is often used at scale.
4. Implemented with no appeal process in place.

**Humans are biased, so why does Algorithm bias matters.**

1. Machine learning can create feedback loops.
2. Machine learning can amplify bias.
3. Algorithm and human are used differently.
4. Technology is powerful and with that comes responsibility.

My take is that Ethics should be incorporated into all organizations operate on all these moral principles when implementing technologies.