The seductive diversion of solving bias in Machine Learning

Kritika Chugh
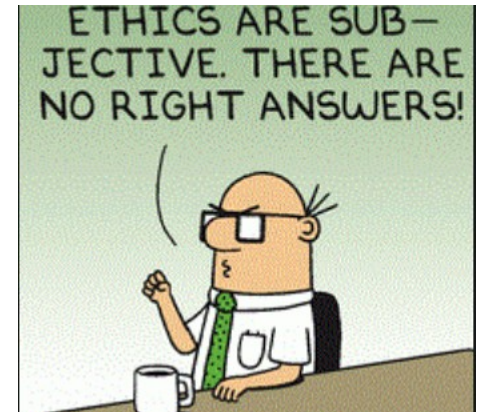Computer Science and Engineering

Syracuse University

How Often do we ask the right question?

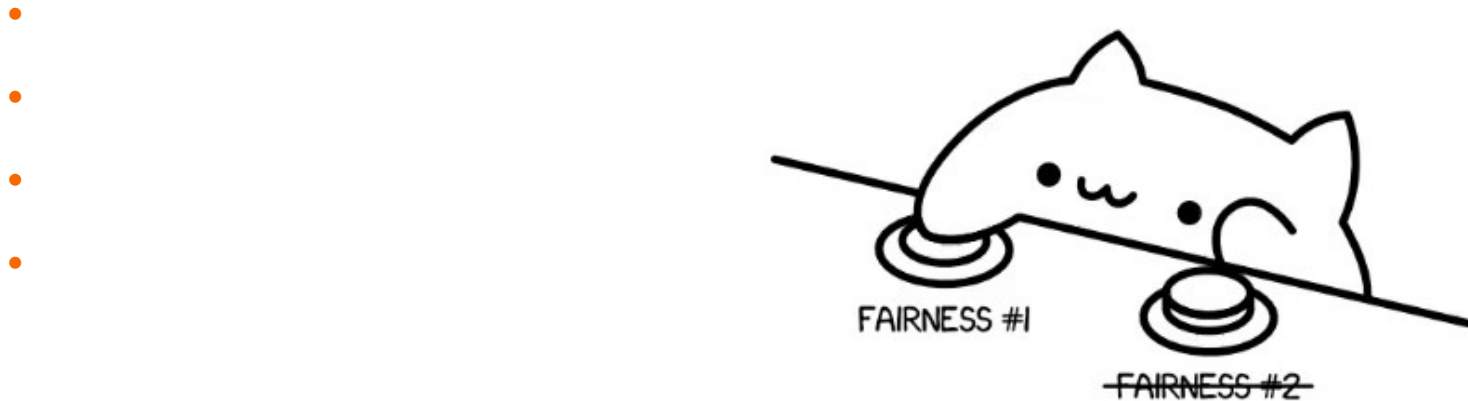Are we trying to fix something that is already broken?

Some may say - We are trying to incorporate a trend of seeing AI without bias. Are we distracting ourselves and de-railing us from solving more important questions about solving more problems at hand?

We are talking about private gains vs societal cost here.

ETHICS ARE SUB-JECTIVE. THERE ARE NO RIGHT ANSWERS!
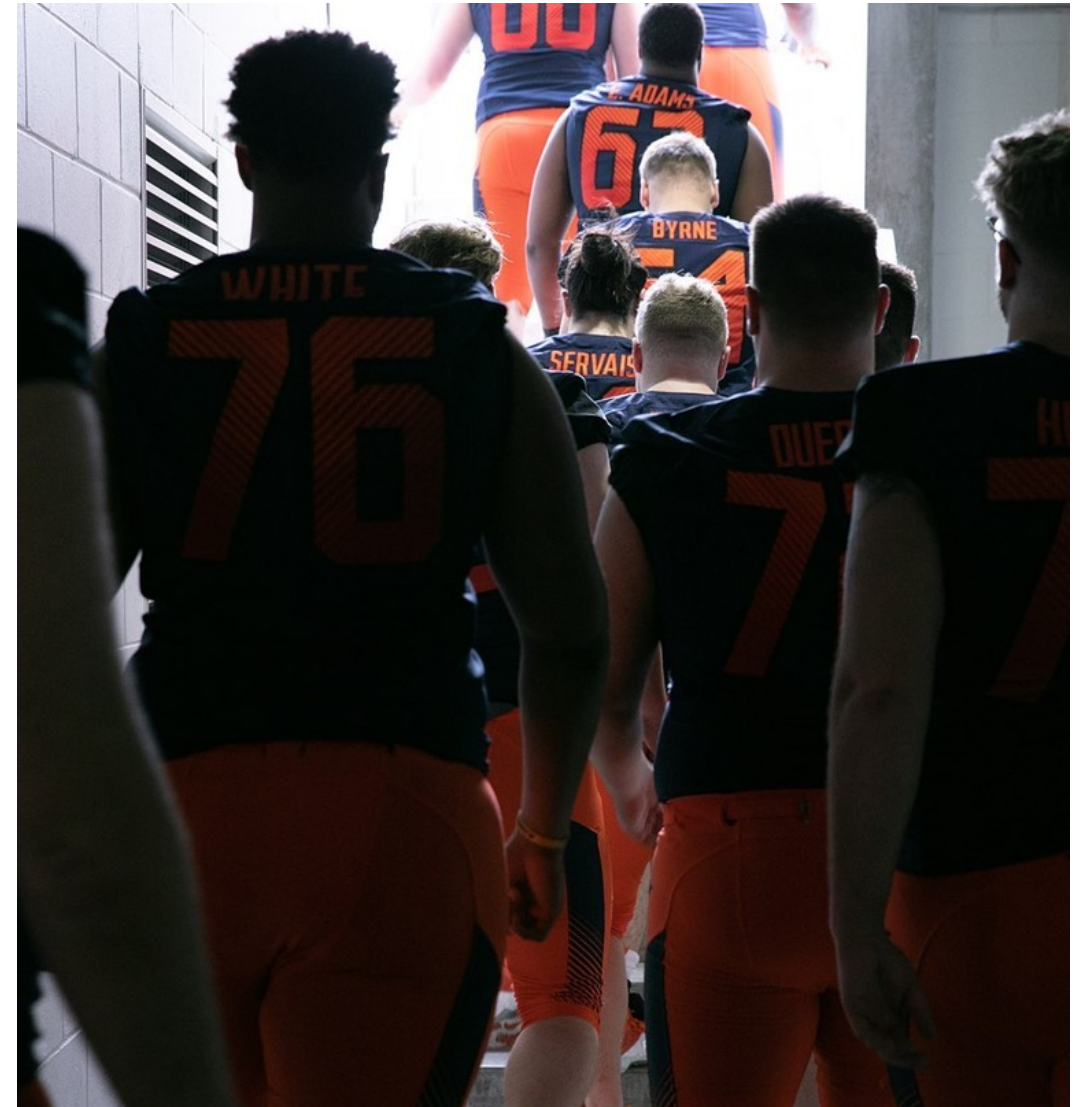
The diversion, seduction and reality

- Great minds and serious thinkers in academia and business want to and are eager to improve the data and algorithms that drive AI but the problem they see mainly is of fairness and have latched on to it.

- The reality is that even though we formalize some conditions for a probabilistic classification to be fair to the different groups, then also there is no method that can simultaneously satisfy all the conditions. This is sometimes also called as Impossibility theorem of fairness.

FAIRNESS #1

~~FAIRNESS #2~~

SOME FAIRNESS DEFINITIONS
CAN BE MUTUALLY EXCLUSIVE.

The challengers?

- They are asking the questions that companies as the likes of FB / alphabet do not like you to ask as it stifles their work in the AI

- The Serious thinkers in academia and business have now started question AI 's Bias problem.

- Why? - It affects their work ethics and credibility of the trade and organization.

- "When technological advancement can go up so exponentially, I do think there's a risk of losing sight of the fact that tech should serve humanity, not the other way around." – Tim Cook

"The Awe and Shock"

Although we live in a world full of bias, AI does quantify it
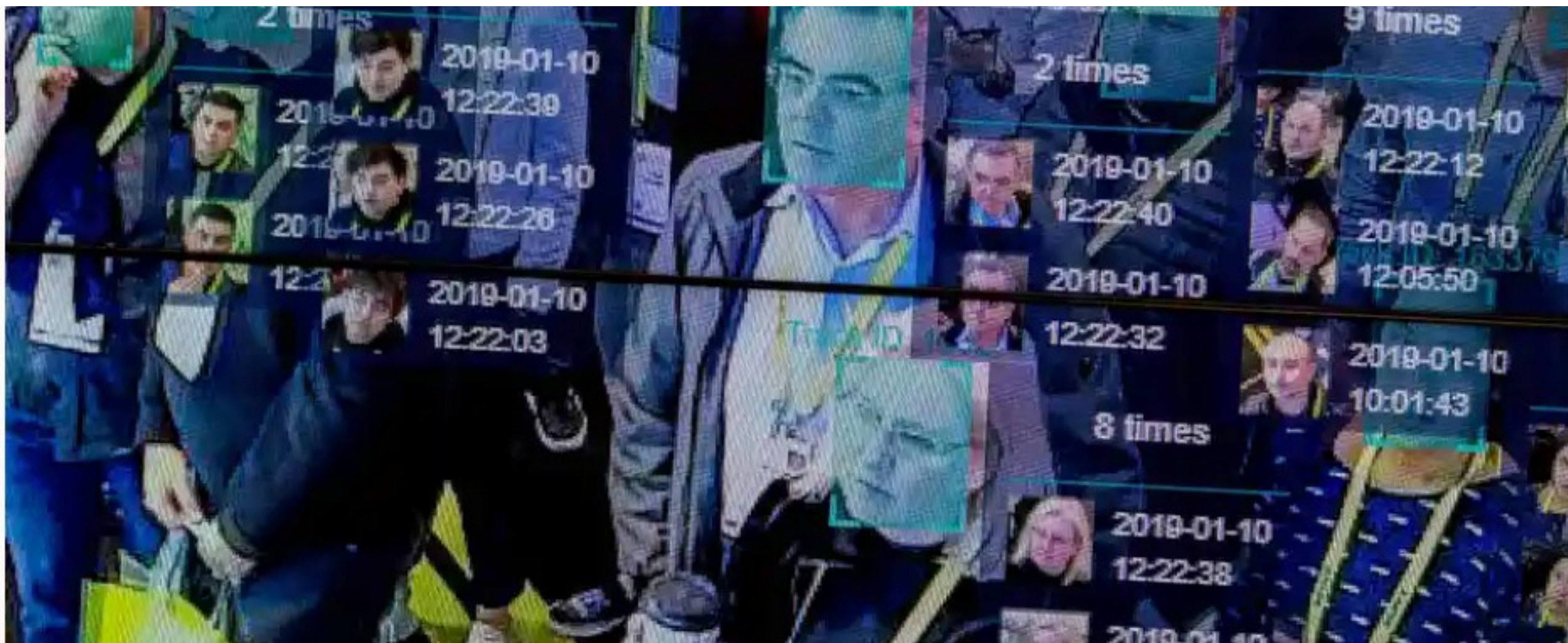
It amplifies racial, gender and class inequality.

They are making people ask these questions as well and they are in "awe and shock".

Given our current deference to technology and contemporary exaltation we are in a state of awe always.

.

A Live demonstration at Horizon Robotics Exhibit (Las Vegas Convention Center, CES 2019 – using AI and facial recognition technology)

Limited Imagination of ethics, media and law.

- Technology has grown from some devices and platforms we use to an entire environment in which we function. For decades tech have defined us. They are a cultural phenomenon now and it has its problems.

- If I purely talk out of computational fairness, then we are ignoring other problems too. And those problems cannot be tackled by engineering.

- **I want to emphasize that it has limited the entire imagination of ethics, media, and law. How?**

✓ Obscuring bias's root cause – addressing bias just as a computational problem prevents other perspective of looking it as a social problem too. Seeking it to solve within the logic of algorithm is going to be inadequate. Having said that, it can and should be removed in the algorithms we design.

✓ Researchers in AI mainly focus to provide high reliable and suitable information to the decision makers. But I feel little is done on serving the data subjects.

✓ For example: Some data bodies have defined ways to protect our data in cases such as fair housing or may be child protection services.

-

The "AI inevitability" and "AI bias" – a twin story

- The following narrative is often sold to us:

- **AI bias narrative:** Bias becomes a part of the grand bargain of innovation just like job losses and safety hazards.

- **AI Inevitability narrative:** by accepting the above narrative we give rise to inevitability.

- It absorbs all bad things – a) classification practices, b) underlying system of inequality perpetuated by automation. And as a result, even a small but relatively increase in fairness would be **claimed as victories.**

-

The end game id to "fix" AI systems, never to use a different system or no system at all.

- AI is backed by real-world forces of money, power, and data.

- There is a broad Political and economic context to it.

  - <u>Political context</u> – gaining power.
  - <u>Economic context</u>- AI is minting money for the big companies.

- Some of the prominent voices do sound alarm. Some genuinely are concerned about how it shapes the society and some just do it with blessings and support from the likes of the Facebook, Microsoft etc.

- Being progressive, they do spotlight important questions (short term) but being private-entities they also make sure to divert the attention from the long-term challenges.

- My view: It is many a times hard to see your own intellectual work as something that might be doing something really appalling.

-

Vast troves of data and who controls them?

Smarter data policies:

- our governors and communities should act decisively to disincentivize and devaluate data hoardings
- Creative policies and carefully designed laws defining **bans**, **levies**, **mandated data sharing** and **community benefit**.

Benefits and exciting challenges:

- Would reenergize the competition and innovation (this have been unquestionably being slowed down by the market power of the tech giants.)
- An opportunity to take up to the challenge to build robust process for solving fundamental existential question.
-

Opinion on laws

- Possibility to stop the use of automated systems which comes with appreciable society cost. (Democracy)
-
- They are there to give genuine accountability mechanism (external to companies and more accessible to population)
-
- Personal thoughts : Any AI system that is integrated in our lives must redress our interest not work against us)
-

Who are affected?

Answer is almost 'EVERYONE'.

We see examples of

- Delivery services skipping poor neighborhood.
- Online ads showing higher paying jobs to men.
- Facial recognition system that fails people of color.

Final Thoughts

- Despite limited implementations AI can be only as good as humans can be. (who program and test it.)

- It has its advantages too and I leave it to discussion to decide which side are you on?

- Do you want to be a part of this mass experiment on humanity, or do you want to opt out of it?

- Are we ready for the grand bargain?

- And if yes, then is it worth it?

- And if yes, do not forget to think about – Who is on the other side of the bargain?

- My thoughts : I feel we already are using more of such technologies and therefore shift should be towards talking about other problems too such as regulations, co-operations, transparency and ethical data collection methodology.

- Additionally, to top all we need to be transparent to the very least with the end user about various metrics used in the algorithms.

Sources and References

- https://dilbert.com/strip/2013-07-25
- https://innovation.defense.gov/ai/
- http://medium.com/
-

Syracuse University

Thank You!

Kritika Chugh
Student – College of Engineering and
Computer Science, Syracuse University
SUID: 8882155566