

Question: In 300-500 words, describe your perspectives on the responsibilities machine learning practitioners have to give thoughtful consideration to the data they use while developing (training) algorithms, and how can they exercise their responsibilities.

---

Libo Zhang

Answer:

Data is what machine learning engineers use to teach machines how to learn different kinds of patterns. We collect and acquire large amount of data through the long history of human activities. When it comes to history, however, topics about inequalities or bias in terms of race and gender are generally common. Therefore, if the data used to develop algorithms is skewed, the machine learning models will correspondingly be skewed.

For example, as the film “Coded Bias” shows, as a black woman, Joy Buolamwini found that her face detection algorithm did not work well testing her own face, unless she was wearing a white mask. It turns out that the datasets Joy used to train her model contain majority men and majority lighter skinned people’s face images. Clearly, such datasets pose significant discrimination or bias against women and darker skinned people, which should be happening in our society. Consequently, machine learning practitioners should take responsibilities of working on debiasing, especially when the algorithms are related to decision making.

To exercise such responsibilities, instead of simply assigning a higher priority to certain groups of people, I think engineers should first analyze and be aware of what potential bias could be existent in their models/algorithms, is it about gender, or race, or income level, or educational background? Then intricate debiasing methods should be designed and implemented in their algorithms.

Apart from historical biased data and working towards debiasing, I think another perspective of responsibilities machine learning practitioners should have is to respect individuals’ data privacy, as well as to make use of machine learning algorithms in an appropriate manner. According to the movie, I notice that in the UK, cameras on the streets are scanning and collecting people’s face images. If people refuse such face recognition and cover their faces, they could be stopped by police officers. A colored student could also be stopped, searched, and inquired by police officers because the face recognition system incorrectly decides that this colored student is suspicious. Given the above two examples about the face recognition system in the UK, I think individuals’ data privacy is very important and deserves more respect from machine learning engineers.

To exercise such responsibilities, first, I think engineers should be self-awareness, which means they thoroughly understand users’ request and sincerely care about our feelings. Second, as the movie shows, I think the external pressure, such as the Algorithmic Justice League, or even formally legal laws to regulate the applications of machine learning algorithms, could contribute and help a lot.