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Reduce Bias in ML and AI Systems

After listening to the tutorial by Timnit Gebru and Emily Denton, it has been made apparent that there is a significant amount of bias and discrimination that goes on within machine learning and artificial intelligence. If left unchecked, problems are sure to arise.

One of the most important parts of machine learning and artificial intelligence is training data and teaching programs what to do or how to respond to certain situations. Gebru mentions this happening in her segment about automated facial analysis tools and their biases. These tools had significantly higher error rates for darker-skinned women than lighter-skinned men. In fact, the darker one’s skin tone, the higher the error rate was generally. The cause for these error rates was most likely because of who generally has access to and control of the internet.

Furthermore, facial recognition software has a very high potential for discrimination. The organization Faception claims to be able to determine whether someone has a high IQ, is a white-collar offender, or is a terrorist. This application of facial recognition is extremely controversial and prejudiced. Another related topic was Maryland’s facial recognition system that was used during Black Lives Matter protests. They used drones and facial surveillance to connect protestors to their social media profiles and further harass them to deter protestors.

In Denton’s part, she spoke of how bias was inescapable within datasets and how a single, universal understanding of concepts would be difficult to achieve. She provides a great example of how hammerhead sharks, trout, and lobsters would be classified as scientific objects, trophies, and food respectively. These classifications are biased toward the majority of users that have access to the internet who, therefore, have a great influence on the data that is produced, collected, and used for training. The way the items previously listed were classified supports her claim about how there is a specific perspective that is tied to the data. Even though there is always bias in datasets, not all datasets are created equal. Denton elaborates by emphasizing how there needs to be a focus on the particularities of a dataset.

I agree with many of the ideas that both of these researchers have presented and will try my best to reduce bias and discrimination when working with data on my own. For example, if my project’s dataset is sourced from only a specific region in North America, I would be careful of what conclusions I can draw from the dataset since it is not very diverse on a global scale. Aside from good practices in data management, I feel that there is great importance in being socially responsible when conducting data science research. Supporting Denton’s ideas, I also believe that it is important to use data that is well-documented and maintained to prevent potential mishaps. Furthermore, I will strive to avoid producing applications that clearly hurt individuals such as the Faception application that Gebru had discussed in her part. There is no need to pedal further violence in our world.