James Wells

Creating AI Enabled Systems

Assignment 9

## **Watch “How I’m Fighting Bias in Algorithms” Then read “Saving Face: Investigating the Ethical Concerns of Facial Recognition Auditing.”**

## **Document a use case scenario for each of the vendors CelebSET APIs that would result in minimal bias when in use. More specifically, how would you apply each of the models (Microsoft, Amazon, and Clarify) that would cause the least harm to stakeholders.**

Microsoft:

Microsoft’s CelebSET API was the highest performing model for the task of gender identification, achieving an overall accuracy of 99.94% and difference in accuracy of 0.13%. A use case that this model would do well could be use cases where data analytics is conducted to understand trends and patterns related to gender in various contexts. For example, social media platforms might analyze gender trends regarding engagement on their platforms to further understand how different genders interact on their platforms.

Amazon:

Amazon’s CelebSET API performed the best in the task of smile detection with a highest overall accuracy of 94.16%. However, it did have the highest difference in accuracy (0.75%) between the best and worst performing intersectional subgroups (lighter and darker) Additionally, It had the highest difference in accuracy between male and female subgroups as well with a difference of 9.00%. Clearly this model exhibits more bias in the task of smile detection, but the overall accuracy is much higher than the other models. Even with this high bias, this model will outperform the others in this task. A use-case where this model can perform well even with the high bias could be sentiment analysis for video game companies. During testing, developers can assess players emotional response for different elements in the game, which can help them better design more engaging and immersive experiences.

Clarifai:

Clarifai’s CelebSET API was the best performing model for the task of Face Detection. Achieving the highest overall accuracy of 99.31% overall accuracy and second lowest difference in accuracy of 0.23% on face detection tasks. The optimal use-case scenario for this model could be related to Authentication and Identify Verification. Nowadays smartphones have the capability to analyze facial structures for authenticating the owner of the phone. To reduce the bias amongst minority groups of users, this model could be used for identifying if there is a face in front of the smartphone camera and identifying the key points on a face for verification.