DAT405 Assignment 6 – Group 53

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December 13, 2022

Part 2: Wearable health-technologies and private health insurance

1a. How can the training pipeline affect the predictions of Vivaksa's health status prediction algorithm when deployed on the general public?

The Vivaksa's health status prediction system is trained using data generated by Vivaksa employees, a relatively small group of people who are all roughly the same age. The broader public is made up of individuals from various age groups, social classes, and economic backgrounds; so, a model created for this exclusive group will be biased. Further data is gathered using the employees' personal Apple watches, which means that data may be gathered using several models of the same brand of watches. Additionally, it should be considered that the general public will use different brand smart watches. By considering the aforementioned assertions, training data does not take into account the variations or errors of other brands. Furthermore, training data is generated for only one month, which may be insufficient. As a result, a model that was trained with biased data is more likely to make bad predictions when used on the general public.

1b. Can Vivaksa improve their predictions? if so how? and if not, why?

Yes, Vivaksa's predictions can be enhanced by training the algorithm with better data sampling. That is, training data from a population that is more representative of the genuine population, as well as widening the period of training data to include data from more than one month. Using data from various smartwatch manufacturers is another factor to take into account while gathering training data.

2. Can the roll-out of this pilot program undermine the insurance company's own value of fairness? – explain why or why not.

The following are reasons which says the roll-out of this pilot program undermine the insurance company's own value of fairness. First off, the algorithm cannot make accurate predictions about people's health status if the training data is collected as specified in the problem statement. Second, even if Vivaksa is reliable, it can only check a limited number of vital indicators. Considering all the preceding reasons, an insurance business attempting to increase justice may wind up offering greater premiums to the wrong people due to faulty projections. Finally, because access to a smart watch is required to use the service, those without such are discriminated against.

Part 3: AI-enabled human personality prediction

1. What are the limitations of Selfie2Personalitys technology - if any?

It is common knowledge that people use social media to primarily share their best self-portraits. This highlights a disadvantage, the implicit homogeneity of the images available for prediction. Additionally, the system may incorrectly predict the behavior of people who have facial deformities or other physical or mental disabilities. A person can also adjust his look to change the assessment, turning a criminal into a non-criminal. The information received from the users will be used to improve the system. However, because the users are probably not typical of the general public, predictions for underrepresented groups are worse.

2. Selfie2Personality share the social media accounts and a psychological profile of users from the city metropolitan area who fit the political stance (as predicted from their app) that law-enforcement found to be sympathetic to the protests. Are there any ethical and privacy concerns with this collaboration and how may they manifest

The biggest problem would be the release of personal information to anybody or anyone else, including law enforcement agencies, other businesses, or even individuals, without the user's consent or acknowledgement leads to privacy issue. However, it's crucial to note that if Selfie2Personality's terms of service called for distribution to third parties, there would be no ethical or privacy issues because users would be responsible for doing so. The algorithm is also unreliable and has the drawbacks mentioned as in the previous answer, which is why it might make incorrect predictions. Therefore, this collaboration may result in prejudice and unjust treatment of persons.