Reflection on the final project

In my final project, I built a novel credit card fraud detection model using a hybrid method. As I introduced in my main report, there are more than 459,297 credit card fraud offenses including credit card fraud and identity theft were reported in 2020. Cardholders lost more than $3.3 billion due to credit card fraud in 2020, an increase of $1.5 billion compared to 2019. Therefore, most financial institutions are building fraud detection models specific to their business. A year ago, a friend who was an intern in the fraud detection team of Alipay, a Chinese transfer software, told me that the company has a team focusing on designing the kernel function for the fraud detection model, aiming at improving the model performance. Although false positive alarms bring inconvenience to users, a correct alarm can reduce plenty of property losses for users, which is the significance of constructing the detection model. Moreover, security is the most important quality for financial institutions. Accurate detection of fraudulent transactions not only enhances customer trust but also strengthens brand image. Therefore, it is meaningful and valuable for financial institutions to invest resources to optimize their fraud detection models.

Ethical issues in the model and model training process cannot be ignored. As the professor mentioned in the previous class, there could be some ethical issues when using zipcode as a feature to train the fraud detection model. In my project, I also paid attention to avoid using this feature to build models. In fact, financial institutions have been thinking about the potential ethical risks in the models for the organizations' business. When I interviewed a financial institution at the beginning of the year, they asked me to give my opinion on training a model to identify suspicious person in the bank. Obviously, the images used to train the model are biased. We all know that the models for image classification are black-box (uninterpretable), so it is difficult to ensure that the model does not include personal characteristics, such as facial contours, gender, race, etc. In contemporary society where the information dissemination channels are so developed, using potentially unethical training data or giving a false positive prediction can be devastating to the organization's brand image and reputation. Therefore, companies must carefully guard against these risks in model implementation. As the executors of model building in the organization, data scientists should be sensitive to potential ethical issues, so as to protect the organization from loss of profit and reputation.