Finding your audience in social networks: How to predict robot-user interaction response thanks to our robot

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Nowadays many products in digital market provide automated solutions for communication with potential customer in Instagram. Different techniques as mass following/unfollowing are applied. However, the methods of picking up the potential audience are dubious. In addition, there is no any sort of analysis that would inspect the potential customer's profile and make a right corresponding action on the right time. In tactics of following/unfollowing the robot follows a user for few days usually and then unfollows. This time is enough for user to notice the account and follow it back in case of being interested in that profile.

In this work as the first step, we collect the data of Instagram robot-user interactions and analyze user responses in the scope of machine learning techniques. Ideally our goal is to maximize the following back rate for the users we follow. We use publicly available user's data to generate the features and to train the model. The final goal is to achieve high accuracy model that can predict how a user is likely to respond to the interaction. With such understanding, we can focus on most potential users and easily build an account with the big audience. As the second step, we need to learn how to retain these users for a long time. Unfollowing a user might trigger that user to unfollow your profile too. However, applying different sort of interactions with the user at particular moment before unfollowing might help a user to not notice the fact that he was unfollowed. Here we need to model which sort of interactions, how many and in which moment during our lifetime of following him we need to apply to the user in order to retain him as our follower. Being able to model these two important facts gives a huge leverage to a business to correctly target right audience in Instagram and retain these users for as long as possible.

In our examples, we will try different approaches to handle the dataset of users and model their interaction with our simulated robot. We will explain how we do the feature engineering and validation on our dataset to prepare it for training.

We will try a Bayesian approach using Bayesian Mixture models to highlight the advantages of this method in our case. Then we will turn to gradient boosting algorithms that are in hype nowadays. In case of need we will show if model slacking would help in improving accuracy.