

ARTICLE TYPE

Bank Loan Synthetic Identity Fraud Detection

The Problem

Synthetic identity fraud occurs when fraudsters create fictional identities by combining real and fake information to apply for loans, often exploiting the credit system's vulnerabilities. In this case, criminals usually used stolen real people's data which mixed together to create a new identity that seems legitimate. Once the loan is given, the criminal can not (mostly) be suit as it is extremely hard to connect him to the load. As such, the client wanted to detect such criminals in advance based on historical records of such events.

The Solution

The solution used classical machine learning-based models. However, the process of preparing the data, training the model, and validating it was challenging due to the client's old and complex IT systems. As such, the solution is created in a three-step process. First, we collected a comprehensive dataset of historical loan applications, including both legitimate and fraudulent cases, with specific emphasis on synthetic identity fraud instances. Second, we created relevant features from the data that could help distinguish between genuine and synthetic identities using close work with the client's fraud team. Third, using our own AutoML technology, we obtained the most appropriate machine-learning algorithm for the task.

After the deployment of the model, we Implemented mechanisms for continuous learning and model improvement. As new data becomes available, periodically retrain the model to adapt to evolving fraud patterns and maintain accuracy. The mechanism re-visits most of the described pipelines automatically, reporting the results to the fraud team leader which manually could replace the model in production.

The Outcome

It is hard to measure the usefulness of the proposed solution as one cannot know if an application is fraudulent or not in advance. To this end, the client tested 100 new applications that the system alerted to be fraudulent. From these cases, 93% were decided to be fraudulent based on an expert's investigation.