Fighting Fraud with Machine Learning and Computer Vision

Idea Description:

Fraud detection is an application that finds its utility ubiquitously across industries, especially finance and insurance industries. 'Fighting Fraud with Machine Learning and Computer Vision' presents a suite of fraud detection tools - tailored to a variety of real-life applications - created using state-of-the-art classical machine learning models as well as cutting-edge deep-learning based computer vision models.

This book is largely hands-on and example driven. Besides initially explaining the fundamental concepts around fraud detection systems, the book walks us through end-to-end implementations of several fraud detection systems used across a variety of real-life applications, such as - fraudulent transactions, identity fraud, detecting fake documents, etc.

Alongside building fraud detection systems, the book also implicitly covers state-of-the-art machine learning and deep learning model architectures especially those pertaining to computer vision based applications. The book can also be treated as a unique reference on fraud data analysis as well as a reference on fraud detection performance evaluation metrics. We will work on both tabular data as well as images (of identity documents).

What do you get once you've finished the book?
A thorough understanding of the fundamental concepts behind fraud detection posed as a machine learning problem. Hands-on end-to-end implementations will enable readers to build and work with fraud detection systems of their own. Readers will walk away with a range of comprehensive examples that they can refer to while working on any binary classification problems, most of all, fraud detection problems.

Target Audience:

Data Scientists, Machine Learning Engineers, Data Engineers, Software Engineers and Product Managers who are aiming to tackle fraud using machine learning especially deep learning based systems. Knowledge of Python is important. Knowledge of machine learning / deep learning is a nice to have. The book can be especially helpful for those working in the FinTech and InsurTech industry.

Technical Requirements:

We will predominantly use Jupyter notebooks for code illustrations.
Scikit-learn/XGBoost/CatBoost for classical machine learning and PyTorch for deep learning. (Docker for containerising end-to-end applications).

Page Count:

250-300 pages