

Master Thesis – Signal analysis and deep learning applied to open banking

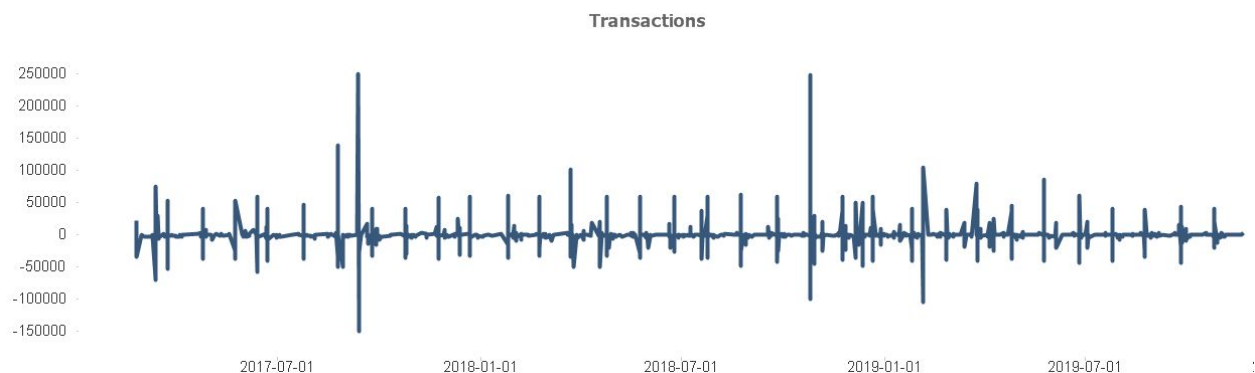
Background

The new European regulation PSD2 that took place on Sep. 2019 requires the banks to open up their data to third parties. The standardization and usage of that data is known as open banking. This offers a great new opportunity for the banks to know about the current and potential customers more than ever before.

Open banking opens up the possibilities of innovation and cross-field development. There are already many players developing the new generation credit scoring and risk assessment, but not that many are thinking out-side the box. We at Ikano are playing at the state of the art working with non-traditional banking tools to understand in an original way our customers' needs.

Goal

The transactional data provided by open banking contains all the expenses, income and transfers done by the customer. Plotting the amount of the transaction against the time in which it was made, we obtain a graph as the one below.



This curve is a combination of recurring positive and negative transactions (for example salary, mortgage, rent, loans, services, food) plus occasional expenses and incomes. A great challenge is to identify those recurring transactions and find out their periodicity.

The goal of this master thesis is to identify patterns in the customers' transactional data to score financial health and predict behavior. Since this data can be regarded as a composition of multiple signals (recurring transactions) and noise (occasional transaction), the challenge is to design filters using signal processing and control theory to identify and separate those signals within the data.

Because of the nature of the data, we may need to apply ad-hoc heuristics that should be handled from an artificial neural network approach.

All the process will demand a lot of skills in data preparation and manipulation. For that reason experience scripting in Python and some knowledge of visualization tools, such as QlikView, will be an advantage. Interest in machine learning and some previous knowledge about neural networks would be of help as well.

Interested?

Please send us your expectation about this thesis and attach your CV and University/College grade summary.

Contact information

For questions regarding technical details, please contact Yolanda Perdomo (Yolanda.Perdomo@ikano.se).

For general or practical questions, please contact Etienne Yuan (Etienne.Yuan@ikano.se).