Enhancing Credit Risk Models at Revolut by combining Deep Feature Synthesis and Marginal Information Value

Abstract

In the domain of credit risk modelling, the generation of predictive features from complex, relational datasets is paramount for accurate risk assessment. Traditional methods often involve manual feature engineering, which can be time-consuming and may not capture intricate relationships within the data. Deep Feature Synthesis (DFS) emerges as a powerful automated technique that addresses these limitations by automatically constructing features from relational and temporal data. This paper explores combining it with Marginal Information Value (MIV) based feature selection to derive an automated credit acquisition scorecard generation process.

The ability to identify insightful features from relational data automatically is particularly crucial for financial institutions like Revolut, which handle vast amounts of transactional data across diverse global markets. Automated feature engineering with DFS and feature selection with MIV allows for the systematic exploration of potential predictors, uncovering complex patterns and interactions that might be missed through manual approaches. This is of significant interest as it can lead to more robust and accurate credit risk models, ultimately impacting crucial business decisions related to lending, pricing, and risk management, especially for individuals with limited traditional credit history.

The paper will explore how the combination of DFS and MIV allows our models to capture nuanced patterns in credit, transactional data and user behaviour, leading to noticeable improvements in model performance and business outcomes, while at the same time automating large parts of the model development process.

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