

ABSTRACT

A method for detecting collusive transaction fraud includes: generating a merchant baseline including a transaction data baseline and a time series baseline; extracting time series data of the first merchant system; generating a first score and second score with a deep learning model; generating a first merchant risk score of the first merchant system based on the first and second scores; in response to determining that the first merchant risk score satisfies the threshold, determining a plurality of related entities related to the first merchant system; and classifying the first merchant system and at least one related entity of the plurality of related entities in a first group risk class based on at least one risk score of the at least one related entity.

<FIGURE 1>