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(54) Title: METHOD, SYSTEM, AND COMPUTER PROGRAM PRODUCT FOR PROVIDING SYNTHETIC TRANSACTION DATA USING GENERATIVE ARTIFICIAL INTELLIGENCE

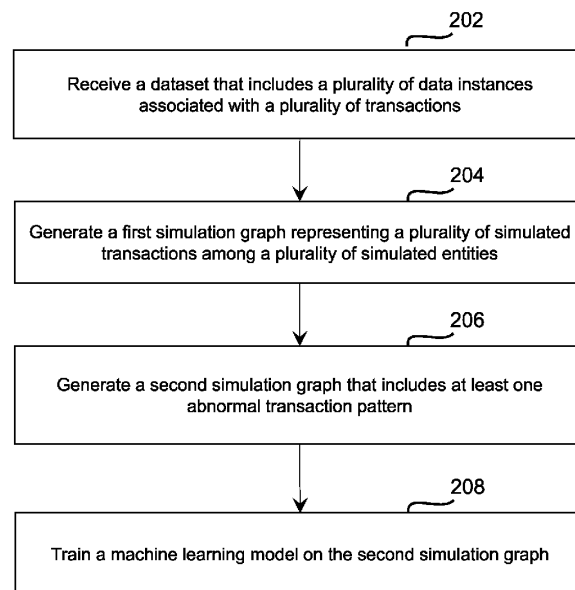


FIG. 2

(57) Abstract: Provided are methods that include generating a first simulation graph representing a plurality of simulated payment transactions involving a plurality of simulated entities based on a dataset using one or more transformer machine learning models, where the generating the first simulation graph includes generating first simulated transaction data for each simulated entity, determining an entity type of each simulated entity of the plurality of simulated entities, generating a plurality of simulation subgraphs of the first simulation graph, and generating second simulated transaction data for each simulated entity of the plurality of simulated entities; adding abnormal transaction patterns to the first simulation graph to provide a second simulation graph; and training a machine learning model based on the second simulation graph to provide a trained machine learning model. Systems and computer program products

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are also disclosed.