[0133] As shown in FIG. 3, at step 320, process 300 may include merging genomes. For example, a genome of each new agent may be merged (e.g., by transaction service provider system 102, another system, another device, and/or the like) with the agent genome of at least one agent of the first subset of agents. In some non-limiting embodiments, assuming three new agents were generated for each agent in the first subset, the genome of the first new agent may be merged with the genome of a first agent of the first subset of agents having a most different strategy. Additionally or alternatively, the genome of the second new agent may be merged with the genome of a second agent of the first subset of agents having a highest fitness. Additionally or alternatively, the genome of the third new agent may be merged with the genome of a third agent of the first subset of agents having a most similar winning strategy. In some non-limiting embodiments, similarity between two given genomes (e.g., genome A such as a genome from one of the new agents and genome B such as a genome from one of the agents in the first subset) may be determined based on a vector distance score. For example, a vector distance score may be expressed as follows:

similarity = overlapping bits / number of bits

[0134] In some non-limiting embodiments, merging two genomes (e.g., genome A such as a genome from one of the new agents and genome B such as a genome from one of the agents in the first subset) may include combining and/or mating the two genomes. For example, for each gene (e.g., respective bit in the respective bit strings of genomes A and B), a random number from a uniform distribution (e.g., between 0 and 1) may be generated. Additionally or alternatively, if the random number is equal to or closer to 1 (e.g., greater than 0.5), the gene (e.g., respective bit) from genome A may be used in the resulting merged genome. Additionally or alternatively, if the random number is equal to or closer to 0 (e.g., less than 0.5), the gene (e.g., respective bit) from genome B may be used in the resulting merged genome. For the purpose of illustration and not limitation, Genome A may be a bit string such as 010010 and Genome B may be a bit string such as 110001. Additionally or alternatively, the procedure for merging the genomes may be expressed in pseudocode as follows:

```
For pos in range(6):
    if Random.float() > .5:
            New_Genome.append(GenomeA[pos])
     else:
```

1076, knowledgebases 1060a, 1060b, knowledgebases 1160a, 1160b, 1160c, and/or the like. In some non-limiting embodiments, models database 1268 may be the same as ML/AI templates database 468 and/or the like. In some non-limiting embodiments, knowledgebase 1260, models database 1268, and/or data transform database 1278 may be part of or similar to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of knowledgebase 1260, models database 1268, and/or data transform database 1278 may be part of or similar to another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110). In some non-limiting embodiments, knowledgebase 1260 may include an external database. In some non-limiting embodiments, one or more of the steps of implementation 1200 may be performed (e.g., completely, partially, and/or the like) by transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of the steps of implementation 1200 may be performed (e.g., completely, partially, and/or the like) by another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110).

[0238] As shown in FIG. 12, at step 1202, implementation 1200 may include a starting point. As shown in FIG. 12, at step 1204, implementation 1200 may include receiving (e.g., by transaction service provider system 102, another system, another device, and/or the like) novel data (e.g., data from a new social media site, new third party data source, data not currently mapped into data transform database 1278, and/or the like). In some non-limiting embodiments, when novel data is received, dynamic, real-time decision making may be beneficial. As such, at least one predictive learning model may be useful in determining information about the novel data. For example, such information may include a novel data transform model (e.g.,

model(s) (e.g., predictive model templates) after the learning process(es), as described herein. For example, the final agent(s) and/or model(s) may be provided, e.g., by transaction service provider system 102, another system, another device, and/or the like. Additionally or alternatively, the final agent(s) and/or model(s) may be stored in the data transform database 1278.

[0246] As shown in FIG. 12, at step 1220, implementation 1200 may include communicating (e.g., sending, transmitting, displaying, and/or the like) a summary of the results (e.g., fitness of the top performing model(s)/winner(s), success of the model(s) in transforming the novel data, and/or the like), as described herein. For example, the results may be communicated (e.g., by transaction service provider system 102, another system, another device, and/or the like) based on the final agent(s)/model(s) (e.g., as stored in data transform database 1278), and/or the like.

[0247] As shown in FIG. 12, at step 1222, implementation 1200 may include an ending point.

[0248] Referring now to FIG. 13, FIG. 13 is a diagram of an exemplary implementation 1300 of a non-limiting embodiment relating to process 300 shown in FIG. 3. As shown in FIG. 13, implementation 1300 may include at least one knowledgebase 1360, at least one models database 1368, and/or the like. In some non-limiting embodiments, knowledgebase 1360 and models database 1368 may be the same database. In some non-limiting embodiments, knowledgebase 1360 may be the same as or similar to one or more of the behavior trees database 462, strategies database 464, goals tree database 466, ML/AI templates database 468, successful traits database 470, immunity knowledge database 472, knowledgebase 560, template database 668, knowledge base 860, knowledgebases 960a, 960b, device database 1076, knowledgebases 1060a, 1060b, knowledgebases 1160a, 1160b, 1160c, knowledgebase 1260, models database 1268, data transform database 1278, and/or the like. In some non-limiting embodiments, models database 1368 may be the same as or similar to ML/AI templates database 468. In some non-limiting embodiments, knowledgebase 1360 and/or models database 1368 may be part of or similar to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of knowledgebase 1360 and/or models database 1368 may be part of or similar to another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as

device, and/or the like) additional templates (e.g., agent template(s), predictive model template(s), goal template(s), and/or the like), as described herein.

[0252] As shown in FIG. 13, at step 1310, implementation 1300 may include providing (e.g., receiving, communicating, storing, and/or the like) the target vector data, as described herein. For example, the target vector data may be communicated, e.g., by transaction service provider system 102, another system, another device, and/or the like.

[0253] As shown in FIG. 13, at step 1312, implementation 1300 may include consolidating a request. For example, a request may be consolidated (e.g., by transaction service provider system 102, another system, another device, and/or the like) based on the loaded templates, target vector data, data from knowledgebase 1360, and/or the like.

[0254] As shown in FIG. 13, at step 1314, implementation 1300 may include running learning process(es). In some non-limiting embodiments, such learning process(es) may be the same as or similar to process 300 and/or the epoch portions thereof, implementation 400 and/or the epoch portion(s) thereof, and/or the like, as described herein.

[0255] As shown in FIG. 13, at step 1316, implementation 1300 may include determining whether goal data is satisfied, as described herein. In some non-limiting embodiments, a determination of whether the goal data is satisfied may be performed (e.g., by transaction service provider system 102, another system, another device, and/or the like) based on a goal template, as described herein. If the goal data is not satisfied, the learning process(es) at step 1314 may be repeated. If the goal data is satisfied, implementation 1300 may proceed to the next step(s).

[0256] As shown in FIG. 13, at step 1318, implementation 1300 may include providing (e.g., storing, communicating, and/or the like) the final agent(s) and/or model(s) (e.g., predictive model templates) after the learning process(es), as described herein. For example, the final agent(s) and/or model(s) may be provided, e.g., by transaction service provider system 102, another system, another device, and/or the like. Additionally or alternatively, the final agent(s) and/or model(s) may be stored in models database 1368.

[0257] As shown in FIG. 13, at step 1320, implementation 1300 may include communicating (e.g., sending, transmitting, displaying, and/or the like) a response associated with the final agent(s) and/or model(s). For example, the response may

be communicated (e.g., by transaction service provider system 102, another system, another device, and/or the like) based on the final agent(s)/model(s) (e.g., as stored in models database 1368), and/or the like. In some non-limiting embodiments, the response may include the automatically generated model(s). In some non-limiting embodiments, the response may include a code, a formatted representation of the automatically generated model(s) (e.g., XML or PMML formatted), and/or the like.

[0258] As shown in FIG. 13, at step 1322, implementation 1300 may include an ending point.

[0259] Referring now to FIG. 14, FIG. 14 is a diagram of an exemplary implementation 1400 of a non-limiting embodiment relating to process 300 shown in FIG. 3. As shown in FIG. 14, implementation 1400 may include at least one knowledgebase 1460a, 1460b, at least one models database 1468, and/or the like. In some non-limiting embodiments, knowledgebases 1460a. 1460b and models database 1468 may be the same database. In some non-limiting embodiments, knowledgebases 1460a, 1460b may be the same as or similar to one or more of the behavior trees database 462, strategies database 464, goals tree database 466, ML/AI templates database 468, successful traits database 470, immunity knowledge database 472, knowledgebase 560, template database 668, knowledge base 860, knowledgebases 960a, 960b, device database 1076, knowledgebases 1060a, 1060b, knowledgebases 1160a, 1160b, 1160c, knowledgebase 1260, models database 1268, data transform database 1278, knowledgebase 1360, models database 1368, and/or the like. In some non-limiting embodiments, models database 1468 may be the same as or similar to ML/AI templates database 468. In some non-limiting embodiments, knowledgebases 1460a, 1460b and/or models database 1468 may be part of or similar to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of knowledgebases 1460a, 1460b and/or models database 1468 may be part of or similar to another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110). In some non-limiting embodiments, at least one of knowledgebases 1460a, 1460b may include an external database. In some non-limiting embodiments, one or more of the steps of

[0273] Referring now to FIG. 15, FIG. 15 is a diagram of an exemplary implementation 1500 of a non-limiting embodiment relating to process 300 shown in FIG. 3. As shown in FIG. 15, implementation 1500 may include at least one knowledgebase 1560, at least one models database 1568, and/or the like. In some non-limiting embodiments, knowledgebase 1560 and models database(s) 1568 may be the same database. In some non-limiting embodiments, knowledgebase 1560 may be the same as or similar to one or more of the behavior trees database 462, strategies database 464, goals tree database 466, ML/AI templates database 468, successful traits database 470, immunity knowledge database 472, knowledgebase 560, template database 668, knowledge base 860, knowledgebases 960a, 960b, device database 1076, knowledgebases 1060a, 1060b, knowledgebases 1160a, 1160b, 1160c, knowledgebase 1260, models database 1268, data transform database 1278, knowledgebase 1360, models database 1368, knowledgebases 1460a, 1460b, models database 1468, and/or the like. In some non-limiting embodiments, models database(s) 1568 may be the same as or similar to ML/AI templates database 468. In some non-limiting embodiments, knowledgebase 1560 and/or models database(s) 1568 may be part of or similar to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of knowledgebase 1560 and/or models database(s) 1568 may be part of or similar to another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110). In some non-limiting embodiments, knowledgebase 1560 may include an external database. In some non-limiting embodiments, one or more of the steps of implementation 1500 may be performed (e.g., completely, partially, and/or the like) by transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of the steps of implementation 1500 may be performed (e.g., completely, partially, and/or the like) by another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of

merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110).

[0274] As shown in FIG. 15, at step 1502, implementation 1500 may include a starting point. As shown in FIG. 15, at step 1504, implementation 1500 may include receiving (e.g., by transaction service provider system 102, another system, another device, and/or the like) customer transaction data associated with at least one customer (e.g., payment transaction data, customer identification data, demographic data associated with the customer(s), census data associated with the customer(s), online profile data such as social media data associated with the customer(s), and/or the like). In some non-limiting embodiments, when customer transaction data is received, dynamic, real-time decision making may be beneficial. As such, at least one predictive learning model may be useful in determining information about the customer transaction data. For example, such information may include an automatically generated model and/or hypothesis representing the customer's habits (e.g., spending/consumption habits, daily travel routines, and/or the like), a graph database based on the customer and/or a community of customers, and/or the like.

[0275] As shown in FIG. 15, at step 1506, implementation 1500 may include loading a master template (e.g., master template for automatic generation of models of customer habits and/or the like), as described herein. The master template may be initialized, e.g., by transaction service provider system 102, another system, another device, and/or the like.

[0276] As shown in FIG. 15, at step 1508, implementation 1500 may include loading (e.g., by transaction service provider system 102, another system, another device, and/or the like) additional templates (e.g., agent template(s), predictive model template(s), goal template(s), and/or the like), as described herein.

[0277] As shown in FIG. 15, at step 1510, implementation 1500 may include providing (e.g., receiving, communicating, storing, and/or the like) the customer transaction data, as described herein. For example, the customer transaction data may be provided, e.g., by transaction service provider system 102, another system, another device, and/or the like.

[0278] As shown in FIG. 15, at step 1512, implementation 1500 may include consolidating a request. For example, a request may be consolidated (e.g., by transaction service provider system 102, another system, another device, and/or the

FIG. 3. As shown in FIG. 16, implementation 1600 may include at least one knowledgebase 1660a, at least one models database 1668, and/or the like. In some non-limiting embodiments, knowledgebase 1660a and models database(s) 1668 may be the same database. In some non-limiting embodiments, knowledgebase 1660a may be the same as or similar to one or more of the behavior trees database 462, strategies database 464, goals tree database 466, ML/AI templates database 468, successful traits database 470, immunity knowledge database 472, knowledgebase 560, template database 668, knowledge base 860, knowledgebases 960a, 960b, device database 1076, knowledgebases 1060a, 1060b, knowledgebases 1160a, 1160b, 1160c, knowledgebase 1260, models database 1268, data transform database 1278, knowledgebase 1360, models database 1368, knowledgebases 1460a, 1460b, models database 1468, knowledgebase 1560, models database 1568, and/or the like. In some non-limiting embodiments, models database(s) 1668 may be the same as or similar to ML/AI templates database 468. In some non-limiting embodiments, knowledgebase 1660a and/or models database(s) 1668 may be part of or similar to transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of knowledgebase 1660a and/or models database(s) 1668 may be part of or similar to another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110). In some non-limiting embodiments, knowledgebase 1660a may include an external database. In some non-limiting embodiments, one or more of the steps of implementation 1600 may be performed (e.g., completely, partially, and/or the like) by transaction service provider system 102 (e.g., one or more devices of transaction service provider system 102). In some non-limiting embodiments, one or more of the steps of implementation 1600 may be performed (e.g., completely, partially, and/or the like) by another system, another device, another group of systems, or another group of devices, separate from or including transaction service provider system 102, such as issuer system 104 (e.g., one or more devices of issuer system 104), customer device 106, merchant system 108 (e.g., one or more devices of merchant system 108), and/or acquirer system 110 (e.g., one or more devices of acquirer system 110).

[0285] As shown in FIG. 16, at step 1602, implementation 1600 may include a starting point. As shown in FIG. 16, at step 1604, implementation 1600 may include receiving (e.g., by transaction service provider system 102, another system, another device, and/or the like) client model error data (e.g., error structure, error value(s), residuals, performance metrics, and/or the like) associated with a predictive model from at least one client device (e.g., a device of merchant system 108, customer device 106, a device of issuer system 104, a device of acquirer system 110, and/or the like). In some non-limiting embodiments, when client model error data is received, dynamic, real-time decision making may be beneficial. As such, at least one predictive learning model may be useful in determining information about the client model error data. For example, such information may include an automatically generated/rebuilt predictive model (e.g., a predictive model for fraud detection in payment transactions), and/or the like.

[0286] As shown in FIG. 16, at step 1606, implementation 1600 may include loading a master template (e.g., master template for automatic generation and/or rebuilding of predictive models, such as predictive models for fraud detection in payment transactions, and/or the like), as described herein. The master template may be initialized, e.g., by transaction service provider system 102, another system, another device, and/or the like.

[0287] As shown in FIG. 16, at step 1608, implementation 1600 may include loading (e.g., by transaction service provider system 102, another system, another device, and/or the like) additional templates (e.g., agent template(s), predictive model template(s), goal template(s), and/or the like), as described herein.

[0288] As shown in FIG. 16, at step 1610, implementation 1600 may include providing (e.g., receiving, communicating, storing, and/or the like) the client model error data, as described herein. For example, the client model error data may be provided, e.g., by transaction service provider system 102, merchant system 108, customer device 106, issuer system 104, acquirer system 110, another system, another device, and/or the like.

[0289] As shown in FIG. 16, at step 1612, implementation 1600 may include consolidating a request. For example, a request may be consolidated (e.g., by transaction service provider system 102, another system, another device, and/or the like) based on the loaded templates, customer transaction data, data from knowledgebase 1660a, models database 1668, and/or the like.