WE CLAIM:

1. A system of one or more electronic devices for determining a target incident occurrence probability, comprising:

at least one storage device including an operation system and a first set of instructions compatible with the operation system for determining an occurrence probability of a target incident; and

at least one processor in communication with the at least one storage device, wherein when executing the operation system and the first set of instructions, the at least one processor is directed to:

extract target order features of an order associated with a service requester;

extract target requester features of the service requester;

extract target provider features of a service provider;

obtain a prediction model for determining a probability that the target incident occurs; and

determine the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.

2. The system of claim 1, wherein to obtain the prediction model, the at least one processor is further directed to:

obtain training data, the training data including a plurality of positive samples in each of which the target incident has not occurred and a plurality of negative samples in each of which the target incident has occurred, each of the plurality of positive samples and the plurality of negative samples including historical transaction data and historical incident data corresponding to the historical transaction data;

extract a plurality of candidate features from the historical transaction data of

the plurality of positive samples and the plurality of negative samples;

for each of the plurality of positive samples and the plurality of negative samples, determine one or more target features from the plurality of candidate features using a feature selection algorithm; and

generate the prediction model based on the one or more target features of the plurality of positive samples, the one or more target features of the plurality of negative samples, and the historical incident data of the plurality of positive samples and the plurality of negative samples.

3. The system of claim 2, wherein to obtain the prediction model, the at least one processor is further directed to:

determine that the training data includes an imbalanced sample composition based on the plurality of positive samples and the plurality of negative samples; and

in response to a determination that the training data includes an imbalanced sample composition, balance the sample composition based on the training data using a sample balancing technique.

4. The system of claim 3, wherein the sample balancing technique includes under-sampling the plurality of positive samples.

5. The system of claim 3 or 4, wherein the sample balancing technique includes over-sampling the plurality of negative samples.

6. The system of claim 5, wherein to balance the sample composition, the at least one processor is further directed to:

determine a plurality of synthetic samples using a K nearest neighbors (KNN) technique; and

designate the plurality of synthetic samples as negative samples.

7. The system of claim 6, wherein to determine the plurality of synthetic samples using the KNN technique, the at least one processor is directed to:

for each of the plurality of negative samples, generate a feature vector based on the one or more target features of the negative sample; and

for each of the feature vectors,

determine a first number of nearest neighbors of the feature vector using the KNN technique;

select a second number of nearest neighbors from the first number of nearest neighbors according to an over-sampling rate; and

generate synthetic samples with respect to the feature vector based on the feature vector and the second number of nearest neighbors.

8. The system of claim 1, wherein the at least one storage device further includes a second set of instructions compatible with the operation system for allocating orders, and wherein when the at least one processor executes the second set of instructions, the at least one processor is further directed to:

obtain one or more target orders from one or more requester terminals associated with one or more target service requesters;

identify a plurality of candidate service providers available to accept the one or more target orders;

determine candidate requester-provider pairs by associating each of the one or more target service requesters with each of the plurality of candidate service providers;

for each of the candidate requester-provider pairs, execute the first set of instructions to determine an occurrence probability that the target incident occurs;

and

allocate the one or more target orders based at least in part on the occurrence probabilities of the target incident and corresponding candidate requester-provider pairs.

9. The system of any one of claims 1-8, wherein the prediction model is an eXtreme Gradient Boosting (Xgboost) model.

10. The system of any one of claims 1-9, wherein the target incident includes at least one of: assault, sexual harassment, killing, drunkenness, rape, or robbery.

11. A method for determining an occurrence probability of a target incident, implemented on one or more electronic devices having at least one storage device, and at least one processor in communication with the at least one storage device, comprising:

extracting target order features of an order associated with a service requester;

extracting target requester features of the service requester;

extracting target provider features of a service provider;

obtaining a prediction model for determining a probability that the target incident occurs; and

determining the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.

12. The method of claim 11, wherein the obtaining the prediction model comprises:

obtaining training data, the training data including a plurality of positive samples in each of which the target incident has not occurred and a plurality of negative samples in each of which the target incident has occurred, each of the plurality of positive samples and the plurality of negative samples including historical transaction data and historical incident data corresponding to the historical transaction data;

extracting a plurality of candidate features from the historical transaction data of the plurality of positive samples and the plurality of negative samples;

for each of the plurality of positive samples and the plurality of negative samples, determining one or more target features from the plurality of candidate features using a feature selection algorithm; and

generating the prediction model based on the one or more target features of the plurality of positive samples, the one or more target features of the plurality of negative samples, and the historical incident data of the plurality of positive samples and the plurality of negative samples.

13. The method of claim 12, wherein the obtaining the prediction model further comprises:

determining that the training data includes an imbalanced sample composition based on the plurality of positive samples and the plurality of negative samples; and

in response to a determination that the training data includes an imbalanced sample composition, balancing the sample composition based on the training data using a sample balancing technique.

14. The method of claim 13, wherein the sample balancing technique includes under-sampling the plurality of positive samples.

15. The method of claim 13 or 14, wherein the sample balancing technique includes over-sampling the plurality of negative samples.

16. The method of claim 15, wherein the balancing the sample composition further comprises:

determining a plurality of synthetic samples using a K nearest neighbors (KNN) technique; and

designating the plurality of synthetic samples as negative samples.

17. The method of claim 16, wherein the determining the plurality of synthetic samples using the KNN technique comprises:

for each of the plurality of negative samples, generating a feature vector based on the one or more target features of the negative sample; and

for each of the feature vectors,

determining a first number of nearest neighbors of the feature vector using the KNN technique;

selecting a second number of nearest neighbors from the first number of nearest neighbors according to an over-sampling rate; and

generating synthetic samples with respect to the feature vector based on the feature vector and the second number of nearest neighbors.

18. The method of claim 11, further comprising:

obtaining one or more target orders from one or more requester terminals associated with one or more target service requesters;

identifying a plurality of candidate service providers available to accept the one or more target orders;

determining candidate requester-provider pairs by associating each of the one

or more target service requesters with each of the plurality of candidate service providers;

for each of the candidate requester-provider pairs, determining an occurrence probability that the target incident occurs; and

allocating the one or more target orders based at least in part on the occurrence probabilities of the target incident and corresponding candidate requester-provider pairs.

19. The method of any one of claims 11-18, wherein the prediction model is an eXtreme Gradient Boosting (Xgboost) model.

20. The method of any one of claims 11-19, wherein the target incident includes at least one of: assault, sexual harassment, killing, drunkenness, rape, or robbery.

21. A non-transitory computer readable medium, comprising an operation system and at least one set of instructions compatible with the operation system for determining an occurrence probability of a target incident, wherein when executed by at least one processor of one or more electronic device, the at least one set of instructions directs the at least one processor to:

extract target order features of an order associated with a service requester;

extract target requester features of the service requester;

extract target provider features of a service provider;

obtain a prediction model for determining a probability that the target incident occurs; and

determine the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the

target provider features.

22. An artificial intelligent system of one or more electronic devices for determining an occurrence probability of a target incident, comprising:

at least one first information exchange port corresponding to a service requesting system, wherein the service requesting system is associated with one or more requester terminals through wireless communications between the at least one first information exchange port and the one or more requester terminals;

at least one second information exchange port corresponding to a service providing system, wherein the service providing system is associated with one or more provider terminals through wireless communications between the at least one second information exchange port and the one or more provider terminals;

at least one storage device including an operation system and a first set of instructions compatible with the operation system for determining an occurrence probability of a target incident; and

at least one processor in communication with the at least one storage device, wherein when executing the operation system and the first set of instructions, the at least one processor is further directed to:

obtain an order of a service requester from a requester terminal associated with the service requesting system via the at least one first information exchange port;

extract target order features of the order;

extract target requester features of the service requester associated with the order;

identify a provider terminal associated with a service provider;

extract target provider features of the service provider;

obtain a prediction model for determining a probability that the target incident

occurs; and

determine the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.

23. The system of claim 22, wherein to obtain the prediction model, the at least one processor is further directed to:

obtain training data, the training data including a plurality of positive samples in each of which the target incident has not occurred and a plurality of negative samples in each of which the target incident has occurred, each of the plurality of positive samples and the plurality of negative samples including historical transaction data and historical incident data corresponding to the historical transaction data;

extract a plurality of candidate features from the historical transaction data of the plurality of positive samples and the plurality of negative samples;

for each of the plurality of positive samples and the plurality of negative samples, determine one or more target features from the plurality of candidate features using a feature selection algorithm; and

generate the prediction model based on the one or more target features of the plurality of positive samples, the one or more target features of the plurality of negative samples, and the historical incident data of the plurality of positive samples and the plurality of negative samples.

24. The system of claim 23, wherein to obtain the prediction model, the at least one processor is further directed to:

determine that the training data includes an imbalanced sample composition based on the plurality of positive samples and the plurality of negative samples; and

in response to a determination that the training data includes an imbalanced

sample composition, balance the sample composition based on the training data using a sample balancing technique.

25. The system of claim 24, wherein the sample balancing technique includes under-sampling the plurality of positive samples.

26. The system of claim 24 or 25, wherein the sample balancing technique includes over-sampling the plurality of negative samples.

27. The system of claim 26, wherein to balance the sample composition, the at least one processor is further directed to:

determine a plurality of synthetic samples using a K nearest neighbors (KNN) technique; and

designate the plurality of synthetic samples as negative samples.

28. The system of claim 27, wherein to determine the plurality of synthetic samples using the KNN technique, the at least one processor is directed to:

for each of the plurality of negative samples, generate a feature vector based on the one or more target features of the negative sample; and

for each of the feature vectors,

determine a first number of nearest neighbors of the feature vector using the KNN technique;

select a second number of nearest neighbors from the first number of nearest neighbors according to an over-sampling rate; and

generate synthetic samples with respect to the feature vector based on the feature vector and the second number of nearest neighbors.

29. The system of claim 22, wherein the at least one storage device further includes a second set of instructions compatible with the operation system for allocating orders, and wherein when the at least one processor executes the second set of instructions, the at least one processor is further directed to:

obtain first electronic signals including one or more target orders associated with one or more target service requesters from the one or more requester terminals via the at least one first information exchange port;

identify a plurality of candidate service providers available to accept the one or more target orders;

determine candidate requester-provider pairs by associating each of the one or more target service requesters with each of the plurality of candidate service providers;

for each of the candidate requester-provider pairs, execute the first set of instructions to determine an occurrence probability that the target incident occurs;

allocate the one or more target orders based at least in part on the occurrence probabilities and corresponding candidate requester-provider pairs; and

send, via the at least one second information exchange port, second electronic signals including information of the allocated target orders to one or more provider terminals associated with the plurality of service providers.

30. The system of any one of claims 22-29, wherein the prediction model is an eXtreme Gradient Boosting (Xgboost) model.

31. The system of any one of claims 22-30, wherein the target incident includes at least one of: assault, sexual harassment, killing, drunkenness, rape, or robbery.

32. A method for determining an occurrence probability of a target incident, implemented on one or more electronic devices having at least one first information exchange port communicating with one or more requester terminals, at least one second information exchange port communicating with one or more provider terminals, at least one storage device, and at least one processor in communication with the at least one storage device, comprising:

obtaining an order of a service requester from a requester terminal via the at least one first information exchange port;

extracting target order features of the order;

extracting target requester features of the service requester associated with the order;

identifying a provider terminal associated with a service provider;

extracting target provider features of the service provider;

obtaining a prediction model for determining a probability that the target incident occurs; and

determining the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.

33. The method of claim 32, wherein the obtaining the prediction model comprises:

obtaining training data, the training data including a plurality of positive samples in each of which the target incident has not occurred and a plurality of negative samples in each of which the target incident has occurred, each of the plurality of positive samples and the plurality of negative samples including historical transaction data and historical incident data corresponding to the historical transaction data;

extracting a plurality of candidate features from the historical transaction data of the plurality of positive samples and the plurality of negative samples;

for each of the plurality of positive samples and the plurality of negative samples, determining one or more target features from the plurality of candidate features using a feature selection algorithm; and

generating the prediction model based on the one or more target features of the plurality of positive samples, the one or more target features of the plurality of negative samples, and the historical incident data of the plurality of positive samples and the plurality of negative samples.

34. The method of claim 33, wherein the obtaining the prediction model further comprises:

determining that the training data includes an imbalanced sample composition based on the plurality of positive samples and the plurality of negative samples; and

in response to a determination that the training data includes an imbalanced sample composition, balancing the sample composition based on the training data using a sample balancing technique.

35. The method of claim 34, wherein the sample balancing technique includes under-sampling the plurality of positive samples.

36. The method of claim 34 or 35, wherein the sample balancing technique includes over-sampling the plurality of negative samples.

37. The method of claim 36, wherein the balancing the sample composition further comprises:

determining a plurality of synthetic samples using a K nearest neighbors (KNN)

technique; and

designating the plurality of synthetic samples as negative samples.

38. The method of claim 37, wherein the determining the plurality of synthetic samples using the KNN technique comprises:

for each of the plurality of negative samples, generating a feature vector based on the one or more target features of the negative sample; and

for each of the feature vectors,

determining a first number of nearest neighbors of the feature vector using the KNN technique;

selecting a second number of nearest neighbors from the first number of nearest neighbors according to an over-sampling rate; and

generating synthetic samples with respect to the feature vector based on the feature vector and the second number of nearest neighbors.

39. The method of claim 32, further comprising:

obtaining first electronic signal including one or more target orders associated with one or more target service requesters from the one or more requester terminals via the at least one first information exchange port;

identifying a plurality of candidate service providers available to accept the one or more target orders;

determining candidate requester-provider pairs by associating each of the one or more target service requesters with each of the plurality of candidate service providers;

for each of the candidate requester-provider pairs, determining an occurrence probability that the target incident occurs;

allocating the one or more target orders based at least in part on the

occurrence probabilities of the target incident and corresponding candidate requester-provider pairs; and

send, via the at least one second information exchange port, second electronic signals including information of the allocated target orders to one or more provider terminals associated with the plurality of service providers.

40. The method of any one of claims 32-39, wherein the prediction model is an eXtreme Gradient Boosting (Xgboost) model.

41. The method of any one of claims 32-40, wherein the target incident includes at least one of: assault, sexual harassment, killing, drunkenness, rape, or robbery.

42. A non-transitory computer readable medium, comprising an operation system and at least one set of instructions compatible with the operation system for determining an occurrence probability of a target incident, wherein when executed by at least one processor of one or more electronic devices, the at least one set of instructions directs the at least one processor to:

obtain an order of a service requester from a requester terminal via at least one information exchange port;

extract target order features of an order;

extract target requester features of the service requester associated with the order;

identify a provider terminal associated with a service provider;

extract target provider features of the service provider;

obtain a prediction model for determining a probability that the target incident occurs; and

determine the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.

43. An artificial intelligent system for allocating orders, comprising:

an incident prediction module configured to determine occurrence probabilities of a target incident for orders; and

an order allocation module configured to allocate the orders based on the occurrence probabilities of the target incident.

44. The system of claim 43, wherein the incident prediction module comprises:

an order feature extraction unit configured to extract target order features of an order;

a requester feature extraction unit configured to extract target requester features of a service requester associated with the order;

a provider feature extraction unit configured to extract target provider features of a service provider;

a model determination unit configured to obtain a prediction model for determining a probability that the target incident occurs; and

an incident prediction unit configured to determine the occurrence probability of the target incident using the prediction model based on the target order features, the target requester features, and the target provider features.