CLAIMS

1. A chatbot configuration method, comprising:

obtaining a service form scanning image, extracting form feature information in the service form scanning image, determining a field type of a literal block in the form feature information, identifying, based on the field type, a target literal block whose field needs to be filled in, and establishing an association relationship between literal blocks based on the target literal block whose field needs to be filled in;

determining, by querying a preset data type configuration table based on the target literal block whose field needs to be filled in, a data type of a field that needs to be filled in and that corresponds to each target literal block;

generating a service segment statement of each target literal block based on the data type of the field that needs to be filled in and that corresponds to each target literal block, the association relationship between literal blocks, and a preset statement template; and

configuring a chatbot based on location information of each target literal block in the form feature information and the service segment statement of each target literal block,

wherein the determining the field type of the literal block in the form feature information comprises:

inputting each literal block in the form feature information into a trained classification model, to obtain confidence levels indicating that the literal blocks belong to preset field types; and

sorting the confidence levels indicating that the literal blocks belong to the preset field types, and using a field type with the highest confidence level as a field type of each literal block.

2. The method according to claim 1, wherein the obtaining a service form scanning image and extracting form feature information in the service form scanning image comprises:

obtaining the service form scanning image, and preprocessing the service form scanning image;

obtaining location information of each literal block and location information of each literal

symbol in the preprocessed service form scanning image based on a trained target detection model, wherein the target detection model is obtained through training by using sample pictures that comprise literal blocks and literal symbols;

dividing the service form scanning image based on the location information of each literal block and the location information of each literal symbol, to obtain multiple literal block images and multiple literal symbol images; and

extracting a literal block and a literal symbol in each literal block image and each literal symbol image based on a trained picture classification model, to obtain the form feature information in the service form scanning image, wherein the picture classification model is obtained through training by using sample pictures that comprise literal blocks and literal symbols.

3. The method according to claim 2, wherein the obtaining location information of each literal block and location information of each literal symbol in the preprocessed service form scanning image based on a trained target detection model comprises:

inputting the preprocessed service form scanning image into the trained target detection model;

extracting features of the preprocessed service form scanning image based on a convolutional neural network in the target detection model; and

obtaining the location information of each literal block and the location information of each literal symbol in the preprocessed service form scanning image based on a fully connected layer in the target detection model and the features of the service form scanning image.

4. The method according to claim 1, wherein the determining a field type of a literal block in the form feature information comprises:

determining a coordinate distance between each literal block and each literal symbol based on location information of each literal block and location information of each literal symbol in the form feature information;

using each literal symbol whose coordinate distance to each literal block falls within a preset distance threshold range as a literal symbol associated with the literal block; and

revising the confidence levels indicating that the literal blocks belong to the preset field types based on an association between each literal block and each literal symbol.

5. The method according to claim 1, wherein the field type comprises a field that needs to be filled in, an option field, and a comment field, and the identifying, based on the field type, a target literal block whose field needs to be filled in and establishing an association relationship between literal blocks based on the target literal block whose field needs to be filled in comprises:

determining, based on a field type of each literal block, that a literal block whose field type is a field that needs to be filled in is the target literal block whose field needs to be filled in;

determining a distance between each target literal block and each option field literal block, and a distance between each target literal block and each comment field literal block based on location information of each literal block in the form feature information;

determining an option field literal block and a comment field literal block corresponding to each target literal block based on the distance between each target literal block and each option field literal block, and the distance between each target literal block and each comment field literal block; and

establishing an association relationship between each target literal block and both the corresponding option field literal block and the corresponding comment field literal block.

6. The method according to claim 1, wherein the configuring a chatbot based on location information of each target literal block in the form feature information and the service segment statement of each target literal block comprises:

determining, based on the location information of each target literal block in the form feature information, a filling sequence of fields that need to be filled in and that correspond to all the target literal blocks;

determining a service process sequence of service segment statements of all the target literal blocks based on the filling sequence of the fields that need to be filled in and that correspond to all the target literal blocks;

generating scenario process information of a service application based on the service process sequence; and

configuring the chatbot by performing model training based on the scenario process information and the service segment statements of all the target literal blocks.

7. The method according to claim 6, wherein the configuring the chatbot by performing model training based on the scenario process information and the service segment statements of all the target literal blocks comprises:

performing model training by inputting the service segment statements of all the target literal blocks into an initial natural language understanding model as a first training set, to obtain a natural language understanding model, wherein the natural language understanding model is used to determine a user intention based on a user statement and capture entity information;

performing model training by inputting the scenario process information into an initial dialogue management model as a second training set, to obtain a dialogue management model, wherein the dialogue management model is used to determine a reply statement based on the user statement and the user intention; and

configuring the chatbot based on the natural language understanding model and the dialogue management model.

8. A chatbot configuration apparatus, comprising:

an obtaining module, configured to obtain a service form scanning image, extract form feature information in the service form scanning image, determine a field type of a literal block in the form feature information, identify, based on the field type, a target literal block whose field needs to be filled in, and establish an association relationship between literal blocks based on the target literal block whose field needs to be filled in;

a first processing module, configured to determine, by querying a preset data type configuration table based on the target literal block whose field needs to be filled in, a data type of a field that needs to be filled in and that corresponds to each target literal block;

a second processing module, configured to generate a service segment statement of each target literal block based on the data type of the field that needs to be filled in and that corresponds to each target literal block, the association relationship between literal blocks, and a preset statement template; and

a configuration module, configured to configure a chatbot based on location information of each target literal block in the form feature information and the service segment statement of each target literal block,

wherein to determine the field type of the literal block in the form feature information, the obtaining module is configured to:

input each literal block in the form feature information into a trained classification model, to obtain confidence levels indicating that the literal blocks belong to preset field types; and

sort the confidence levels indicating that the literal blocks belong to the preset field types, and using a field type with the highest confidence level as a field type of each literal block.

9. The apparatus according to claim 8, wherein the obtaining module is further configured to obtain the service form scanning image, and preprocess the service form scanning image; obtain location information of each literal block and location information of each literal symbol in the preprocessed service form scanning image based on a trained target detection model, wherein the target detection model is obtained through training by using sample pictures that comprise literal blocks and literal symbols; divide the service form scanning image based on the location information of each literal block and the location information of each literal symbol, to obtain multiple literal block images and multiple literal symbol images; and extract a literal block and a literal symbol in each literal block image and each literal symbol image based on a trained picture classification model, to obtain the form feature information in the service form scanning image, wherein the picture classification model is obtained through training by using sample pictures that comprise literal blocks and literal symbols.

10. A computer device, comprising a memory and one or more processors, wherein the memory stores a computer-readable instruction, and when the computer-readable instruction is executed by the one or more processors, the one or more processors are enabled to perform the following steps:

obtaining a service form scanning image, extracting form feature information in the service form scanning image, determining a field type of a literal block in the form feature information, identifying, based on the field type, a target literal block whose field needs to be filled in, and establishing an association relationship between literal blocks based on the target literal block whose field needs to be filled in;

determining, by querying a preset data type configuration table based on the target literal block whose field needs to be filled in, a data type of a field that needs to be filled in and that corresponds to each target literal block;

generating a service segment statement of each target literal block based on the data type of the field that needs to be filled in and that corresponds to each target literal block, the association relationship between literal blocks, and a preset statement template; and

configuring a chatbot based on location information of each target literal block in the form feature information and the service segment statement of each target literal block,

wherein the determining the field type of the literal block in the form feature information comprises:

inputting each literal block in the form feature information into a trained classification model, to obtain confidence levels indicating that the literal blocks belong to preset field types; and

sorting the confidence levels indicating that the literal blocks belong to the preset field types, and using a field type with the highest confidence level as a field type of each literal block.

11. The computer device according to claim 10, wherein when the one or more processors execute the computer-readable instruction, the following steps are further performed:

obtaining the service form scanning image, and preprocessing the service form scanning

image;

obtaining location information of each literal block and location information of each literal symbol in the preprocessed service form scanning image based on a trained target detection model, wherein the target detection model is obtained through training by using sample pictures that comprise literal blocks and literal symbols;

dividing the service form scanning image based on the location information of each literal block and the location information of each literal symbol, to obtain multiple literal block images and multiple literal symbol images; and

extracting a literal block and a literal symbol in each literal block image and each literal symbol image based on a trained picture classification model, to obtain the form feature information in the service form scanning image, wherein the picture classification model is obtained through training by using sample pictures that comprise literal blocks and literal symbols.

12. The computer device according to claim 10, wherein when the one or more processors execute the computer-readable instruction, the following steps are further performed:

inputting the preprocessed service form scanning image into the trained target detection model;

extracting features of the preprocessed service form scanning image based on a convolutional neural network in the target detection model; and

obtaining the location information of each literal block and the location information of each literal symbol in the preprocessed service form scanning image based on a fully connected layer in the target detection model and the features of the service form scanning image.

13. The computer device according to claim 10, wherein when the one or more processors execute the computer-readable instruction, the following steps are further performed:

determining a coordinate distance between each literal block and each literal symbol based on location information of each literal block and location information of each literal symbol in the form feature information;

using each literal symbol whose coordinate distance to each literal block falls within a preset

distance threshold range as a literal symbol associated with the literal block; and

revising the confidence levels indicating that the literal blocks belong to the preset field types based on an association between each literal block and each literal symbol.

14. The computer device according to claim 10, wherein when the one or more processors execute the computer-readable instruction, the following steps are further performed:

determining, based on a field type of each literal block, that a literal block whose field type is a field that needs to be filled in is the target literal block whose field needs to be filled in;

determining a distance between each target literal block and each option field literal block, and a distance between each target literal block and each comment field literal block based on location information of each literal block in the form feature information;

determining an option field literal block and a comment field literal block corresponding to each target literal block based on the distance between each target literal block and each option field literal block, and the distance between each target literal block and each comment field literal block; and

establishing an association relationship between each target literal block and both the corresponding option field literal block and the corresponding comment field literal block.

15. The computer device according to claim 10, wherein when the one or more processors execute the computer-readable instruction, the following steps are further performed:

determining, based on the location information of each target literal block in the form feature information, a filling sequence of fields that need to be filled in and that correspond to all the target literal blocks;

determining a service process sequence of service segment statements of all the target literal blocks based on the filling sequence of the fields that need to be filled in and that correspond to all the target literal blocks;

generating scenario process information of a service application based on the service process sequence; and

configuring the chatbot by performing model training based on the scenario process information and the service segment statements of all the target literal blocks.

16. One or more nonvolatile computer-readable storage media that store a computer-readable instruction, wherein when the computer-readable instruction is executed by one or more processors, the one or more processors are enabled to perform the following steps:

obtaining a service form scanning image, extracting form feature information in the service form scanning image, determining a field type of a literal block in the form feature information, identifying, based on the field type, a target literal block whose field needs to be filled in, and establishing an association relationship between literal blocks based on the target literal block whose field needs to be filled in;

determining, by querying a preset data type configuration table based on the target literal block whose field needs to be filled in, a data type of a field that needs to be filled in and that corresponds to each target literal block;

generating a service segment statement of each target literal block based on the data type of the field that needs to be filled in and that corresponds to each target literal block, the association relationship between literal blocks, and a preset statement template; and

configuring a chatbot based on location information of each target literal block in the form feature information and the service segment statement of each target literal block,

wherein the determining the field type of the literal block in the form feature information comprises:

inputting each literal block in the form feature information into a trained classification model, to obtain confidence levels indicating that the literal blocks belong to preset field types; and

sorting the confidence levels indicating that the literal blocks belong to the preset field types, and using a field type with the highest confidence level as a field type of each literal block.

17. The storage media according to claim 16, wherein when the computer-readable instruction is executed by the one or more processors, the following steps are further performed:

obtaining the service form scanning image, and preprocessing the service form scanning image;

obtaining location information of each literal block and location information of each literal symbol in the preprocessed service form scanning image based on a trained target detection model, wherein the target detection model is obtained through training by using sample pictures that comprise literal blocks and literal symbols;

dividing the service form scanning image based on the location information of each literal block and the location information of each literal symbol, to obtain multiple literal block images and multiple literal symbol images; and

extracting a literal block and a literal symbol in each literal block image and each literal symbol image based on a trained picture classification model, to obtain the form feature information in the service form scanning image, wherein the picture classification model is obtained through training by using sample pictures that comprise literal blocks and literal symbols.

18. The storage media according to claim 16, wherein when the computer-readable instruction is executed by the one or more processors, the following steps are further performed:

inputting the preprocessed service form scanning image into the trained target detection model;

extracting features of the preprocessed service form scanning image based on a convolutional neural network in the target detection model; and

obtaining the location information of each literal block and the location information of each literal symbol in the preprocessed service form scanning image based on a fully connected layer in the target detection model and the features of the service form scanning image.

19. The storage media according to claim 16, wherein when the computer-readable instruction is executed by the one or more processors, the following steps are further performed:

determining a coordinate distance between each literal block and each literal symbol based on location information of each literal block and location information of each literal symbol in the form feature information;

using each literal symbol whose coordinate distance to each literal block falls within a preset distance threshold range as a literal symbol associated with the literal block; and

revising the confidence levels indicating that the literal blocks belong to the preset field types based on an association between each literal block and each literal symbol.

20. The storage media according to claim 16, wherein when the computer-readable instruction is executed by the one or more processors, the following steps are further performed:

determining, based on a field type of each literal block, that a literal block whose field type is a field that needs to be filled in is the target literal block whose field needs to be filled in;

determining a distance between each target literal block and each option field literal block, and a distance between each target literal block and each comment field literal block based on location information of each literal block in the form feature information;

determining an option field literal block and a comment field literal block corresponding to each target literal block based on the distance between each target literal block and each option field literal block, and the distance between each target literal block and each comment field literal block; and

establishing an association relationship between each target literal block and both the corresponding option field literal block and the corresponding comment field literal block.