CLAIMS

1. A method for predicting an intention of a user of a chatbot system, the method comprising the steps of:

receiving or obtaining feature data from a plurality of feature sources;

classifying the feature data into a plurality of feature groups;

extracting the feature data using a first machine learning layer;

modelling at least one relationship between one group of feature data and another group of feature data in the plurality of feature groups using a second machine learning layer; and

choosing the intention based on the feature data associated with click-through rate (CTR).

2. The method of claim 1, wherein the first machine learning layer comprises a first multi-layer perceptron neural network, and the second machine learning layer comprises a second multi-layer perceptron neural network.

3. The method of claim 1 or 2, further comprising a step of calculating a probability of the intention based on the modelled at least one relationship.

4. The method of claim 3, further comprising displaying the intention, in the form of one or more suggestions to the user for selection as input to the chatbot system.

5. The method of any one of the preceding claims, further comprising a step of detecting whether the user has entered the chatbot system based on a pre-determined user login data.

6. The method of claim 5, wherein in a positive determination that the user has entered the chatbot system, the method further comprise obtaining feature data associated with the user based on the pre-determined user login data.

7. The method of claim 6, wherein the feature data associated with the user includes an intent feature data group, and a user specific feature data group.

8. The method of claim 7, wherein the user specific feature data includes past transaction data of the user, user profile data, credit status data of the user.

9. The method of claim 7 or 8, wherein the intent feature data includes a question text data, a one-hot intent data, and a one-hot category data.

10. The method of any one of claims 1 or 2, wherein the feature data includes at least one of a real time feature and an offline feature.

11. The method of any one of the preceding claims, wherein the first machine learning layer is implemented as a multi-gate mixture-of-experts model.

12. A system for predicting an intention of a user of a chatbot system, the system comprising at least one processor configured to

model at least one relationship between one group of feature data and another group of feature data in the feature groups using a machine learning layer;

identify at least one intention of the user based on the at least one relationship between one group of feature data and another group of feature data in the feature groups; and

display, in a graphical user interface, the at least one intention in the form of one or more suggestions to the user for selection as input to the chatbot system, wherein the intention is chosen based on the feature data associated with click-through rate (CTR).

13. The system of claim 12, wherein the machine learning layer comprises a multi-layer perceptron neural network.

14. The system of any one of claims 12 or 13, wherein the processor is configured to detect whether the user has entered the chatbot system based on a pre-determined user login data.

15. The system of claim 14, wherein in a positive determination that the user has entered the chatbot system, the processor is configured to obtain feature data associated with the user based on the pre-determined user login data.

16. The system of claim 15, wherein the feature data associated with the user includes an intent feature data group, and a user specific feature data group.

17. The system of claim 16, wherein the user specific feature data includes past transaction data of the user, user profile data, credit status data of the user.

18. The system of claim 16 or 17, wherein the intent feature data includes a question text data, a one-hot intent data, and a one-hot category data.

19. A computer program element comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of any one of claims 1 to 11.

20. A computer-readable medium comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of any one of claims 1 to 11.

21. A user interaction system comprising a chatbot system, the chatbot system comprises

the system of claims 12 to 18 configured as an intent prediction module to detect a user entering the chatbot system and provide the intention in the form of one or more suggestions to the user;

a typing suggestion module, the typing suggestion module configured to detect a selected suggestion and provide further suggestion(s) as the user enters or keys in the selected suggestion;

an intent recognition module, the intent recognition module configured to detect the selected suggestion of the user, the intent recognition module further configured to generate a response based on the selected suggestion; and

a related article suggestion module, the related article suggestion module configured to display a list of related articles, the list of related articles related to the selected suggestion and the response.

22. The system of claim 21, wherein the related article suggestion module comprises a relevance model, the relevance model trained to produce a ranked output set according to the degree of relevance between the list of related articles and the selected suggestion or the response.

23. The system of claim 22, wherein the related article suggestion module includes a reranking module, the reranking module configured to re-rank the ranked output set based on at least one user feedback.

24. The system of claim 23, wherein the at least one user feedback comprises a positive or negative determination that the user subsequently selects any one of the related article from the ranked output set.

25. The system of claim 23 or 24, wherein the reranking module may be configured to obtain user behaviour data for the reranking.