

[0005] The terms used in this specification generally have their ordinary meanings in the art, within the context of the disclosure, and in the specific context where each term is used. Alternative language and synonyms can be used for any one or more of the terms discussed herein, and no special significance should be placed upon whether or not a term is elaborated or discussed herein. In some cases, synonyms for certain terms are provided. A recital of one or more synonyms does not exclude the use of other synonyms. The use of examples anywhere in this specification including examples of any terms discussed herein is illustrative only, and is not intended to further limit the scope and meaning of the disclosure or of any example term. Likewise, the disclosure is not limited to various embodiments given in this specification.

[0006] Without intent to limit the scope of the disclosure, examples of instruments, apparatus, methods and their related results according to the embodiments of the present disclosure are given below. Note that titles or subtitles can be used in the examples for convenience of a reader, which in no way should limit the scope of the disclosure. Unless otherwise defined, technical and scientific terms used herein have the meaning as commonly understood by one of ordinary skill in the art to which this disclosure pertains. In the case of conflict, the present document, including definitions will control.

[0007] Additional features and advantages of the disclosure will be set forth in the description which follows, and in part will be obvious from the description, or can be learned by practice of the herein disclosed principles. The features and advantages of the disclosure can be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features of the disclosure will become more fully apparent from the following description and appended claims, or can be learned by the practice of the principles set forth herein.

[0008] ~~According to some embodiments, a computer implemented method is provided. The computer implemented method comprises receiving a communication. The communication includes one or more words in a natural language. The method further comprises parsing the communication to identify an operative word. This operative word is related to an available action associated with a user device. The method further comprises identifying a pre-defined intent associated with the operative word and facilitating annotation of the pre-defined intent. The pre-defined intent defines the action associated with the user device. Additionally, the annotation defines a quality of an association between the communication and the pre-defined intent. The method further comprises retrieving one or more agent profiles, wherein agent profiles are associated with an agent and a terminal device. Further, the method comprises selecting an agent profile from the one or more agent profiles. The agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent. The method further comprises routing the communication, wherein when the communication is received at the terminal device associated with the selected agent profile, execution of the action is facilitated.~~

According a first aspect, there is provided a computer-implemented method including: receiving a communication, wherein the communication includes one or more words in a natural language; parsing the communication to identify an operative word, wherein the operative word is related to an available action associated with a user device; identifying a pre-defined intent associated with the operative word, wherein the pre-defined intent defines the action associated with the user device; automatically determining a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association

includes applying a formula to calculate the quality; retrieving two or more agent profiles, wherein an agent profile corresponds to an agent associated with a terminal device; selecting an agent profile from the two or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, and wherein communications are routed to a terminal device associated with the selected agent profile; establishing a communication session between the user device and the terminal device associated with the selected agent profile; and routing the communication, wherein when the communication is received at the terminal device associated with the agent corresponding to the selected agent profile, execution of the action is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.

[0009] In some embodiments, identifying the operative word includes querying a database including at least the operative word, wherein the querying is performed using the one or more words as input.

[0010] In some embodiments, the pre-defined intent associated with the operative word is identified through a query of a database including associations between stored operative words and intents.

[0011] In some embodiments, the annotation is performed based on a correlation of the communication and the pre-defined intent.

[0012] In some embodiments, the correlation of the agent profile to the pre-defined intent indicates that the pre-defined intent matches an intent of which an agent associated with the agent profile is knowledgeable.

[0013] In some embodiments, the execution of the action includes facilitating a connection between the user device and the terminal device.

~~**[0014]** In one embodiment, a system comprises one or more processors and memory including instructions that, as a result of being executed by the one or more processors, cause the system to: receive a communication, wherein the communication includes one or more words in a natural language; identify an operative word of the one or more words from the communication, wherein the operative word is related to an available action associated with a user device; identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to the user device; annotate the pre-defined intent to define a quality of an association between the communication and the pre-defined intent; select an agent profile from one or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein agent profiles are associated with an agent and a terminal device; and route the communication, wherein when the communication is received at the terminal device associated with the selected agent profile, execution of the action is facilitated.~~

According a second aspect, there is provided a system, including: one or more processors; and memory including instructions that, as a result of being executed by the one or more processors, cause the system to: receive a communication, wherein the communication includes one or more words in a natural language; identify an operative word of the one or more

words from the communication, wherein the operative word is related to an available action associated with a user device; identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to the user device; automatically determine a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association includes applying a formula to calculate the quality; select an agent profile from two or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein the agent profile corresponds to an agent associated with a terminal device, and wherein communications are routed to a terminal device associated with the selected agent profile; establish a communication session between the user device and the terminal device associated with the selected agent profile; and route the communication, wherein when the communication is received at the terminal device associated with the agent corresponding to the selected agent profile, execution of the action is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.

[0015] In some embodiments, the instructions that cause the system to identify the pre-defined intent further cause the system to perform a semantic analysis of the communication and an analysis of user input and communication statistics to determine the pre-defined intent.

[0016] In some embodiments, the correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent is determined based on a score that reflects a suitability of the terminal device and an agent associated with the agent profile to respond to the communication.

[0017] In some embodiments, the instructions that cause the system to annotate the pre-defined intent to define the quality of an association between the communication and the pre-defined intent further cause the system to: provide the operative word and the pre-defined intent to a computing device to cause the computing device to perform an evaluation of the quality of the association; and obtain, from the computing device, the evaluation of the quality of the association.

[0018] In some embodiments, the instructions that cause the system to identify the pre-defined intent associated with the operative word further cause the system to query a database including stored associations between stored operative words and intents, to identify an association between the operative word and the pre-defined intent.

[0019] In some embodiments, the instructions that cause the system to annotate the pre-defined intent to define the quality of an association between the communication and the pre-defined intent further cause the system to calculate the quality based on a second association between the operative word and the pre-defined intent.

[0020] In some embodiments, the pre-defined intent is generated using artificial intelligence and an intent model, wherein the artificial intelligence is applied to the intent model to aggregate intent-related data and generate corresponding intents.

[0021] ~~In one embodiment, a non-transitory computer-readable storage medium stores thereon executable instructions that, as a result of being executed by one or more processors of a computer system, cause the computer system to: identify an operative word from a~~

~~communication, wherein the communication includes one or more words in a natural language and wherein the one or more words include the operative word; identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to a user device; annotate the pre-defined intent to define a quality of an association between the communication and the pre-defined intent; select an agent profile from one or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein agent profiles are associated with an agent and a terminal device; and route the communication, wherein when the communication is received at a terminal device associated with the selected agent profile, execution of the action is facilitated.~~

According a third aspect, there is provided a non-transitory computer-readable storage medium storing thereon executable instructions that, as a result of being executed by one or more processors of a computer system, cause the computer system to: identify an operative word from a communication, wherein the communication includes one or more words in a natural language and wherein the one or more words include the operative word; identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to a user device; automatically determine a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association includes applying a formula to calculate the quality; select an agent profile from two or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein the agent corresponds to an agent associated with a terminal device, and wherein communications are routed to a terminal device associated with the selected agent profile; establish a communications session between the user device and the terminal device associated with the selected agent profile; and route the communication, wherein when the communication is received at a terminal device associated with agent corresponding to the selected agent profile, execution of the action is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.

[0022] In some embodiments, the executable instructions that cause the computer system to identify the operative word from the communication further cause the computer system to perform a query of a database including entries corresponding to stored operative words to obtain the operative word, wherein the query is performed using the one or more words as input.

[0023] In some embodiments, the correlation of the agent profile to the pre-defined intent indicates that the pre-defined intent matches an intent of which an agent associated with the agent profile is knowledgeable.

[0024] In some embodiments, the quality of the association between the communication and the pre-defined intent is determined based on a confidence score that indicates a confidence that the communication is associated with the pre-defined intent.

[0025] In some embodiments, the correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent is

CLAIMS

WHAT IS CLAIMED IS:

1. A computer-implemented method comprising:
 - receiving a communication, wherein the communication includes one or more words in a natural language;
 - parsing the communication to identify an operative word, wherein the operative word is related to an available action associated with a user device;
 - identifying a pre-defined intent associated with the operative word, wherein the pre-defined intent defines the action associated with the user device;
 - ~~facilitating annotation of the pre-defined intent, wherein the annotation defines~~ automatically determining a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association includes applying a formula to calculate the quality;
 - retrieving ~~one-two~~ or more agent profiles, wherein ~~an~~ agent profiles ~~are associated with~~ corresponds to an agent ~~and associated with~~ a terminal device;
 - selecting an agent profile from the ~~one-two~~ or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, and wherein communications are routed to a terminal device associated with the selected agent profile; and
 - establishing a communication session between the user device and the terminal device associated with the selected agent profile; and
 - routing the communication, wherein when the communication is received at the terminal device associated with the agent corresponding to the selected agent profile, execution of the action is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.
2. The computer-implemented method of claim 1, wherein identifying the operative word includes querying a database including at least the operative word, wherein the querying is performed using the one or more words as input.

3. The computer-implemented method of claim 1, wherein the pre-defined intent associated with the operative word is identified through a query of a database including associations between stored operative words and intents.

~~4. The computer-implemented method of claim 1, wherein the annotation is performed based on a correlation of the communication and the pre-defined intent.~~

~~54.~~ The computer-implemented method of claim 1, wherein the correlation of the agent profile to the pre-defined intent indicates that the pre-defined intent matches an intent of which an agent ~~associated with~~ corresponding to the agent profile is knowledgeable.

~~6. The computer-implemented method of claim 1, wherein the execution of the action includes facilitating a connection between the user device and the terminal device.~~

~~75.~~ A system, comprising:
one or more processors; and
memory including instructions that, as a result of being executed by the one or more processors, cause the system to:
receive a communication, wherein the communication includes one or more words in a natural language;
identify an operative word of the one or more words from the communication, wherein the operative word is related to an available action associated with a user device;
identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to the user device;
~~annotate the pre-defined intent to define~~ automatically determine a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association includes applying a formula to calculate the quality;

select an agent profile from ~~one-two~~ or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein ~~the~~ agent profiles ~~are associated with~~ corresponds to an agent ~~and associated with~~ a terminal device, ~~and wherein communications are routed to a terminal device associated with the selected agent profile;~~ ~~and~~

establish a communication session between the user device and the terminal device associated with the selected agent profile; and

route the communication, wherein when the communication is received at the terminal device associated with the agent corresponding to the selected agent profile, execution of the action is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.

86. The system of claim 75, wherein the instructions that cause the system to identify the pre-defined intent further cause the system to perform a semantic analysis of the communication and an analysis of user input and communication statistics to determine the pre-defined intent.

97. The system of claim 75, wherein the correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent is determined based on a score that reflects a suitability of the terminal device and an agent ~~associated with~~ corresponding to the agent profile to respond to the communication.

~~10.—The system of claim 7, wherein the instructions that cause the system to annotate the pre-defined intent to define the quality of an association between the communication and the pre-defined intent further cause the system to:~~

~~provide the operative word and the pre-defined intent to a computing device to cause a the computing device to perform an evaluation of the quality of the association; and
obtain, from the computing device, the evaluation of the quality of the association.~~

~~118.~~ The system of claim 75, wherein the instructions that cause the system to identify the pre-defined intent associated with the operative word further cause the system to query a

database including stored associations between stored operative words and intents, to identify an association between the operative word and the pre-defined intent.

~~129.~~ The system of claim ~~75~~, wherein the instructions that cause the system to ~~annotate the pre-defined intent to define~~ automatically determine the quality of ~~an~~ the association between the communication and the pre-defined intent further cause the system to calculate the quality based on a second association between the operative word and the pre-defined intent.

~~1310.~~ The system of claim ~~75~~, wherein the pre-defined intent is generated using artificial intelligence and an intent model, wherein the artificial intelligence is applied to the intent model to aggregate intent-related data and generate corresponding intents.

~~1411.~~ A non-transitory computer-readable storage medium storing thereon executable instructions that, as a result of being executed by one or more processors of a computer system, cause the computer system to:

identify an operative word from a communication, wherein the communication includes one or more words in a natural language and wherein the one or more words include the operative word;

identify a pre-defined intent associated with the operative word, wherein the pre-defined intent defines an action available to a user device;

~~annotate the pre-defined intent to define~~ automatically determine a quality of an association between the communication and the pre-defined intent, wherein determining the quality of the association includes applying a formula to calculate the quality;

select an agent profile from ~~one~~ two or more agent profiles, wherein the agent profile is selected based on a correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent, wherein the agent ~~profiles are associated with~~ corresponds to an agent ~~and associated with~~ a terminal device, and wherein communications are routed to a terminal device associated with the selected agent profile; and
establish a communications session between the user device and the terminal device associated with the selected agent profile; and

route the communication, wherein when the communication is received at a terminal device associated with agent corresponding to the selected agent profile, execution of the action

is facilitated, and wherein additional communications between the user device and the terminal device are exchangeable over the communication session.

~~1512.~~ The non-transitory computer-readable storage medium of claim ~~1411~~, wherein the executable instructions that cause the computer system to identify the operative word from the communication further cause the computer system to perform a query of a database including entries corresponding to stored operative words to obtain the operative word, wherein the query is performed using the one or more words as input.

~~1613.~~ The non-transitory computer-readable storage medium of claim ~~1411~~, wherein the correlation of the agent profile to the pre-defined intent indicates that the pre-defined intent matches an intent of which ~~an~~the agent ~~associated with~~corresponding to the agent profile is knowledgeable.

~~1714.~~ The non-transitory computer-readable storage medium of claim ~~1411~~, wherein the quality of the association between the communication and the pre-defined intent is determined based on a confidence score that indicates a confidence that the communication is associated with the pre-defined intent.

~~1815.~~ The non-transitory computer-readable storage medium of claim ~~1411~~, wherein the correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent is determined based on a score that reflects a suitability of the terminal device and ~~an~~the agent ~~associated with~~corresponding to the agent profile to respond to the communication.

~~19.—The non-transitory computer-readable storage medium of claim 14, wherein the executable instructions that cause the computer system to route the communication further cause the computer system to establish a connection between the user device and the terminal device.~~

2016. The non-transitory computer-readable storage medium of claim 1411, wherein the pre-defined intent is generated using artificial intelligence and an intent model, wherein the artificial intelligence is applied to the intent model to aggregate intent-related data and generate corresponding intents.

17. The computer-implemented method of claim 1, wherein the pre-defined intent is generated using artificial intelligence and an intent model, wherein the artificial intelligence is applied to the intent model to aggregate intent-related data and generate corresponding intents.

18. The computer-implemented method of claim 1, wherein the correlation of the agent profile to the pre-defined intent and the quality of the association between the communication and the pre-defined intent is determined based on a score that reflects a suitability of the terminal device and an agent corresponding to the agent profile to respond to the communication.

19. The computer-implemented method of claim 1, further comprising performing a semantic analysis of the communication and an analysis of user input and communication statistics to determine the pre-defined intent.

20. The computer-implemented method of claim 1, wherein the quality of the association between the communication and the pre-defined intent is determined based on a confidence score that indicates a confidence that the communication is associated with the pre-defined intent.

21. The computer-implemented method of claim 1, wherein the quality is calculated based on a second association between the operative word and the pre-defined intent.

22. The system of claim 5, wherein the instructions that cause the system to identify the operative word of the one or more words further cause the system to query a database including at least the operative word, wherein the querying is performed using the one or more words as input.

23. The system of claim 5, wherein the correlation of the agent profile to the pre-defined intent indicates that the pre-defined intent matches an intent of which the agent corresponding to the agent profile is knowledgeable.

24. The system of claim 5, wherein the quality of the association between the communication and the pre-defined intent is determined based on a confidence score that indicates a confidence that the communication is associated with the pre-defined intent.

25. The non-transitory computer-readable storage medium of claim 11, wherein the executable instructions that cause the computer system to identify the pre-defined intent further cause the computer system to perform a query of a database including entries corresponding to associations between stored operative words and intents, to identify an association between the operative word and the pre-defined intent.

26. The non-transitory computer-readable storage medium of claim 11, wherein the executable instructions that cause the computer system to identify the pre-defined intent further cause the computer system to perform a semantic analysis of the communication and an analysis of user input and communication statistics to determine the pre-defined intent.

27. The non-transitory computer-readable storage medium of claim 11, wherein the instructions that cause the system to automatically determine the quality of the association between the communication and the pre-defined intent further cause the system to calculate the quality based on a second association between the operative word and the pre-defined intent.