DYNAMIC TEXT MESSAGE PROCESSING IMPLEMENTING ENDPOINT COMMUNICATION CHANNEL SELECTION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 62/809,136, filed February 22, 2019, which is hereby incorporated by reference in its entirety.

FIELD

[0002] The present disclosure relates generally to communication processing using artificial intelligence (AI). More specifically, techniques are provided to deploy an AI platform to select endpoints in a communication channel, which allows users to engage with endpoints best suited to answer natural language queries.

BACKGROUND

[0003] Bot scripts can be executed to automate data processing and task management. However, as the amount of data grows in scale and becomes increasingly dynamic and complex, traditional bot scripts exhibit a significant lack of efficiency. Configuring bot scripts to correctly detect target outcomes for task management is often challenging. Bot scripts are also typically incapable of processing tasks across multiple different environments, such as between different communication channels.

SUMMARY

[0004] The term embodiment and like terms are intended to refer broadly to all of the subject matter of this disclosure and the claims below. Statements containing these terms should be understood not to limit the subject matter described herein or to limit the meaning or scope of the claims below. Embodiments of the present disclosure covered herein are defined by the claims below, not this summary. This summary is a high-level overview of various aspects of the disclosure and introduces some of the concepts that are further described in the Detailed Description section below. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used in isolation to determine the scope of the claimed subject matter. The subject matter should be understood by reference to appropriate portions of the entire specification of this disclosure, any or all drawings and each claim.

[0004a] According to a first aspect of the present disclosure, there is provided a computer-implemented method including: maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface; receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface; identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages; automatically selecting a first endpoint device from a plurality of endpoint devices for first one of

the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first service provider and only the first subset of the request text messages is routed to the first endpoint device; routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device; formulating a command based on the first subset of the request text messages and the first endpoint device, wherein when the formulated command is received at the first endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation; generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

[0004b] According to a second aspect of the present disclosure, there is provided a system, including: one or more data processors; and a non-transitory computer-readable storage medium containing instructions which, when executed on the one or more data processors, cause the one or more data processors to perform operations including: maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface; receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface; identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages; automatically selecting a first endpoint device from a plurality of endpoint devices for first one of the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first service provider and only the first subset of the request text messages is routed to the first endpoint device; routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device; formulating a command based on the first subset of the request text messages and the first endpoint device, wherein when the formulated command is received at the first

endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation; generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

[0004c] According to a third aspect of the present disclosure, there is provided a computer-program product tangibly embodied in a non-transitory machine-readable storage medium, including instructions configured to cause a data processing apparatus to perform operations including: maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface; receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface; identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages; automatically selecting a first endpoint device from a plurality of endpoint devices for first one of the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first service provider and only the first subset of the request text messages is routed to the first endpoint device; routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device; formulating a command based on the first subset of the request text messages and the endpoint device, wherein when the formulated command is received at the first endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation; generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

CLAIMS

1. A computer-implemented method comprising:

maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface;

receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface;

identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages;

automatically selecting a first endpoint device from a plurality of endpoint devices for first one of the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first service provider and only the first subset of the request text messages is routed to the first endpoint device;

routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device;

formulating a command based on the first subset of the request text messages and the first endpoint device, wherein when the formulated command is received at the first endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation;

generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and

presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

2. The computer-implemented method of claim 1, wherein the first subset of the request text messages includes a request for a data resource, and wherein the response text message includes the data resource.

3. The computer-implemented method of claim 1, wherein the first endpoint device and the second endpoint device are associated with different service types available within a physical environment and selectable from a list of service options presented by the same text messaging interface.

4. The computer-implemented method of claim 1, wherein the first subset of the request text messages includes one or more natural language requests, and further comprising:

interpreting the natural language requests by parsing the natural language requests for one or more keywords, and wherein one or more of semantic analyses of the one or more keywords, user input, and message-associated statistics are used to identify a pre-defined intent, wherein selecting the first endpoint device is further based on the pre-defined intent.

5. The computer-implemented method of claim 1, wherein the plurality of request text messages is received from a mobile device associated with a user, and wherein the first subset of the request text messages is associated with a client identifier.

6. The computer-implemented method of claim 1, further comprising:

automatically selecting the second endpoint device for the second conversation corresponding to the second subset of the request text messages.

7. The computer-implemented method of claim 1, wherein the first endpoint device is associated with a different format than the plurality of text messages, and further comprising:

translating one or more of the request text messages into the different format associated with the first endpoint device, wherein the response is also in the different format, wherein generating the response text message includes converting the response into a natural language response for display within the text messaging interface.

8. A system, comprising:

one or more data processors; and

a non-transitory computer-readable storage medium containing instructions which, when executed on the one or more data processors, cause the one or more data processors to perform operations including:

maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface;

receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface;

identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages;

automatically selecting a first endpoint device from a plurality of endpoint devices for first one of the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first service provider and only the first subset of the request text messages is routed to the first endpoint device;

routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the

second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device;

formulating a command based on the first subset of the request text messages and the first endpoint device, wherein when the formulated command is received at the first endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation;

generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and

presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

9. The system of claim 8, wherein the first subset of the request text messages includes a request for a data resource, and wherein the response text message includes the data resource.

10. The system of claim 8, wherein and the second endpoint device are associated with different service types available within a physical environment and selectable from a list of service options presented by the same text messaging interface.

11. The system of claim 8, wherein the first subset of the request text messages includes one or more natural language requests, and wherein the operations further comprise:

interpreting the natural language requests by parsing the natural language requests for one or more keywords, and wherein one or more of semantic analyses of the one or more keywords, user input, and message-associated statistics are used to identify a pre-defined intent, wherein selecting the first endpoint device is further based on the pre-defined intent.

12. The system of claim 8, wherein the plurality of request text messages is received from a mobile device associated with a user, and wherein the first subset of the request text messages is associated with a client identifier.

13. The system of claim 8, wherein the operations further include:

automatically selecting the second endpoint device for the second conversation corresponding to the second subset of the request text messages.

14. The system of claim 8, wherein the first endpoint is associated with a different format than the plurality of text messages, and wherein the operations further include:

translating one or more of the request text messages into the different format associated with the first endpoint device, wherein the response is also in the different format, wherein generating the response text message includes converting the response into a natural language response for display within the text messaging interface.

15. A computer-program product tangibly embodied in a non-transitory machine-readable storage medium, including instructions configured to cause a data processing apparatus to perform operations including:

maintaining a state for a plurality of different conversations being conducted concurrently, wherein the plurality of different conversations use a same text messaging interface;

receiving a plurality of request text messages associated with the plurality of different conversations being conducted concurrently using the same text messaging interface, wherein the plurality of request text messages for the different conversations appear in a woven display in the text messaging interface;

identifying a first weight for a first subset of request text messages, wherein a second weight is identified for a second subset of the request text messages;

automatically selecting a first endpoint device from a plurality of endpoint devices for first one of the concurrent conversations corresponding to the first subset of the request text messages associated with a first service type based on the first weight identified for the first subset of request text messages, and wherein the first endpoint device is associated with a first

service provider and only the first subset of the request text messages is routed to the first endpoint device;

routing only the second subset of the request text messages to a second endpoint device from the plurality of endpoint devices for a second one of the concurrent conversations based on the second weight identified for the second subset of the request text messages, wherein the second endpoint device is associated with a second service provider associated with a second service type, and wherein the second endpoint device is distinct from the first endpoint device;

formulating a command based on the first subset of the request text messages and the endpoint device, wherein when the formulated command is received at the first endpoint device, the first endpoint device generates a response to the formulated command that is based on a state associated with the first conversation;

generating a response text message associated with the first conversation based on the response, wherein the response text message corresponds to the state associated with the formulated command; and

presenting the response text message associated with the first conversation within the woven display of the text messaging interface, wherein the text messaging interface weaves the response text message into the woven display that also includes the second conversation being conducted concurrently with the second endpoint device via a different associated communication channel.

16. The computer-program product of claim 15, wherein a first subset of the request text messages includes a request for a data resource, and wherein the response text message includes the data resource.

17. The computer-program product of claim 15, wherein the first endpoint device and the second endpoint device are associated with different service types available within a physical environment and selectable from a list of service options presented by the same text messaging interface.

18. The computer-program product of claim 15, wherein the first subset of the request text messages includes one or more natural language requests, and wherein the operations further include:

interpreting the natural language requests by parsing the natural language requests for one or more keywords, and wherein one or more of semantic analyses of the one or more keywords, user input, and message-associated statistics are used to identify a pre-defined intent, wherein selecting the first endpoint device is further based on the pre-defined intent.

19. The computer-program product of claim 15, wherein the plurality of request text messages is received from a mobile device associated with a user, and wherein the first subset of the request text messages is associated with a client identifier.

20. The computer-program product of claim 15, wherein the operations further include:

automatically selecting the second endpoint device for the second conversation corresponding to the second subset of the request text messages.

21. The computer-program product of claim 15, wherein the first endpoint is associated with a different format than the plurality of text messages, and wherein the operations further include:

translating one or more of the request text messages into the different format associated with the first endpoint device, wherein the response is also in the different format, wherein generating the response text message includes converting the response into a natural language response for display within the text messaging interface.