PROACTIVE VIRTUAL ASSISTANT

BACKGROUND

[0001] Some computing platforms may provide a user interface from which a user can chat, speak, or otherwise communicate with a virtual, computational assistant (e.g., also referred to as "an intelligent personal assistant" or simply as an "assistant") to cause the assistant to output useful information, respond to a user's needs, or otherwise perform certain operations to help the user complete a variety of real-world or virtual tasks. For instance, a computing device may receive, with a microphone, voice input (e.g., audio data) that corresponds to a user utterance. An assistant executing, at least in part, at the computing device may analyze the voice input and attempt to satisfy the utterance by outputting useful information based on the utterance, responding to a user's needs indicated by the utterance, or otherwise perform certain operations to help the user complete a variety of real-world or virtual tasks based on the utterance.

SUMMARY

[0001a] According to an aspect of the present disclosure, there is provided a method comprising:

maintaining a list of computing devices that are associated with a user and that each operate a respective local assistant module;

determining a plurality of notifications to be proactively provide to the user associated with the list of computing devices, each of the one or more notifications including respective content;

determining a respective ranking for each of the notifications;

in response to determining that the ranking for each the notifications fails to satisfy a threshold:

collapsing the notifications into a single combined notification;

selecting, from the list of computing devices, a given computing device at which to signal availability of the combined notification;

signaling the availability of the combined notification at the given computing device;

responsive to additional input, at the local assistant module of the given computing device and in response to the signaling, that indicates consent of the user, causing the combined notification to be rendered by the local assistant module of the given computing device.

[0001b] There is also disclosed a computer-readable storage medium comprising instructions that, when executed cause at least one processor to perform the method as described. There is further disclosed a computing device comprising means for performing the method as described.

[0002] In one example, the disclosure is directed to a method that includes determining, by an assistant executing at one or more processors, content for a conversation with a user of a computing device, selecting, by the assistant, based on the content and information associated with the user, a modality to signal initiating the conversation with the user, and causing, by the assistant, in the modality, a signaling of the conversation with the user.

[0003] In another example, the disclosure is directed to a system that includes one or more processors and a memory comprising instructions that when executed cause the one or more processors to determine content for a conversation with a user of a computing device, select, based on the content and information associated with the user, a modality to signal initiating the conversation with the user, and cause, in the modality, a signaling of the conversation with the user.

[0004] In another example, the disclosure is directed to a computer-readable storage medium including instructions that when executed cause one or more processors of a system to determine content for a conversation with a user of a computing device, select, based on the content and information associated with the user, a modality to signal initiating the