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Providing Entity Information Within A Video Player App

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Providing Entity Information Within A Video Player App

ABSTRACT

Video creators that post videos to online video hosting websites or social media can manually add associated links for the video. When a viewer clicks on an associated link, the viewer is redirected from the video app to another app thereby disrupting the video experience. This disclosure describes machine learning techniques to automatically surface associated links for a video within a video player app and to automatically make curated content about entities in the video available for the user to explore within the video player app. By displaying entity information within the video app while video playback continues, the user is provided a seamless experience that does not disrupt the video watching experience.

KEYWORDS

- Video player
- Entity information
- Entity extraction
- Suggested link
- Curated information
- Video overlay
- Virtual assistant
- Picture-in-picture
- Suggestion engine

BACKGROUND

Video creators that post videos to online video hosting websites or social media can manually add associated links (e.g., the website of an artist in the video) for the video, e.g., in the description section. Manual addition of associated links is tedious for the video creator. Furthermore, when a viewer clicks on an associated link, the viewer is redirected from the video app to another app such as a browser, thereby disrupting the video experience.

DESCRIPTION

This disclosure describes machine learning techniques that determine associated links for video content and automatically make the links available for a video viewer to explore. By recognizing entities in the video (e.g., from the structured description), such ML-based techniques can generate suggestions that redirect the users to curated information about the extracted video entities. Furthermore, when a user selects the suggestions, the user is not redirected to a separate app from the video viewing app. Rather, the additional information is presented in the form of an overlay, such that the user can view the additional information without leaving the video app.

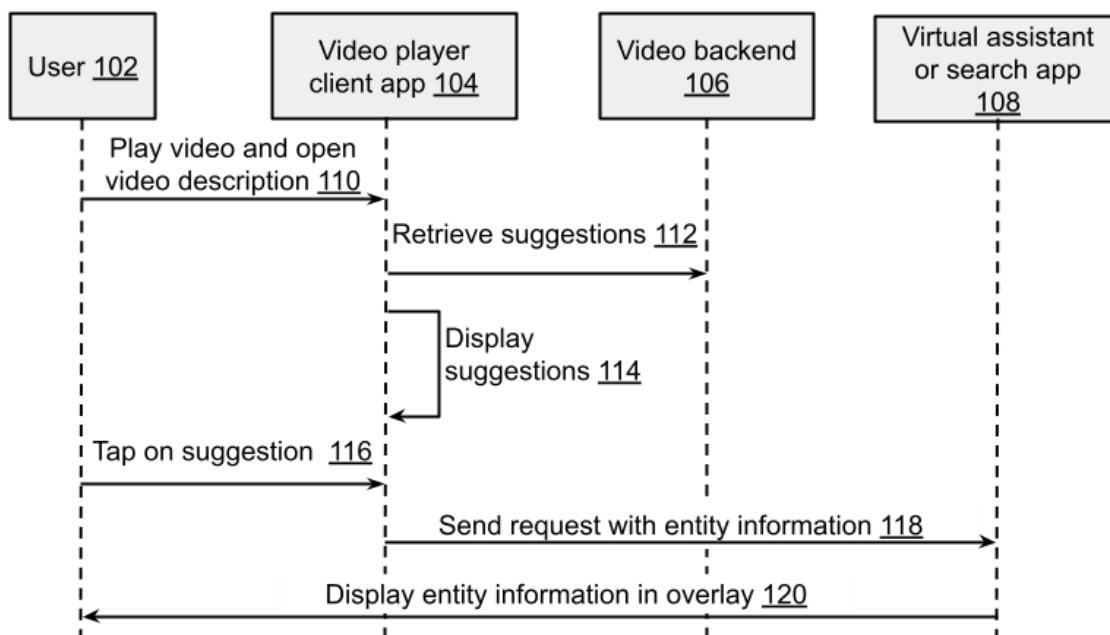


Fig. 1: Fulfillment techniques for video entities

As illustrated in Fig. 1, the techniques are operative in an environment that includes a video player client app (104), which provides a user interface; a video backend (106) that stores videos and powers the video player client app; a virtual assistant or search app (108); etc. The

video backend can extract entities from video content and generate suggestions by interacting with other backend systems, e.g., entity-extraction services, suggestion services, etc. The virtual assistant can show the fulfillment overlay that displays curated information about the entities.

A user (102) opens the video player app, plays a video, and opens the video description (110). The video player app retrieves suggestions from the video backend, optionally alongside the video itself or the video description (112). The retrieved suggestions are displayed (114). In response to the user selecting the suggestion by tapping or other action (116), the player app sends a request to the virtual assistant or search app with the entity information, e.g., entity name or ID (118). The virtual assistant app displays entity information overlaid over the video (120) such that the video player app interface is displayed on the screen underneath the overlay.

To achieve the overlay of entity information over the video, the request from the video player app to the virtual assistant can include the video screen position, a picture-in-picture flag, or a text query.

Video screen position

The video player app sends the video screen position (e.g., height if it is at the top or [x, y] coordinates of left-top and/or right-bottom). The virtual assistant app receives the screen size information. The virtual assistant app adjusts the fulfillment overlay window size so that the video can remain visible.

Picture-in-picture flag

The video player app sends to the virtual assistant app a flag indicating whether to enable picture-in-picture mode. Depending on the state of the flag (set/unset), the virtual assistant app enables or disables picture-in-picture mode for the foreground of the video player app.

Text query

The video player app sends the request to the virtual assistant in the form of text or special query. The virtual assistant app does not take focus such that the video can continue to play without interruption.

Fig. 2 illustrates an example user interface to display entity information within a video player app. A user is watching a video (202). Entities in the video are extracted and automatically suggested (204). If the user taps on a suggestion, curated information about the selected entities is displayed in an overlay (206), e.g., such that the video continues playing on the screen behind the overlay. Entity extraction can be repeated as the video continues playing and additional suggestions can be surfaced (208).

Examples of the entities about which information is surface include music artists in a music video, composer or performer for an audio stream, actors in a television show or movie, speakers in a lecture or interview video or podcast, additional context about a movie clip, entities depicted in a video (e.g., locations within a city, animals in a scene, etc.), etc.

The described techniques can be used in any video player application that supports detecting entities in a video and providing additional information about the detected entities. By displaying entity information within the video app while video playback continues, the user is provided a seamless experience that does not disrupt the video watching experience. The techniques can be used in video player apps on mobile devices such as smartphones and tablets, as well as televisions, smart displays, or other devices.

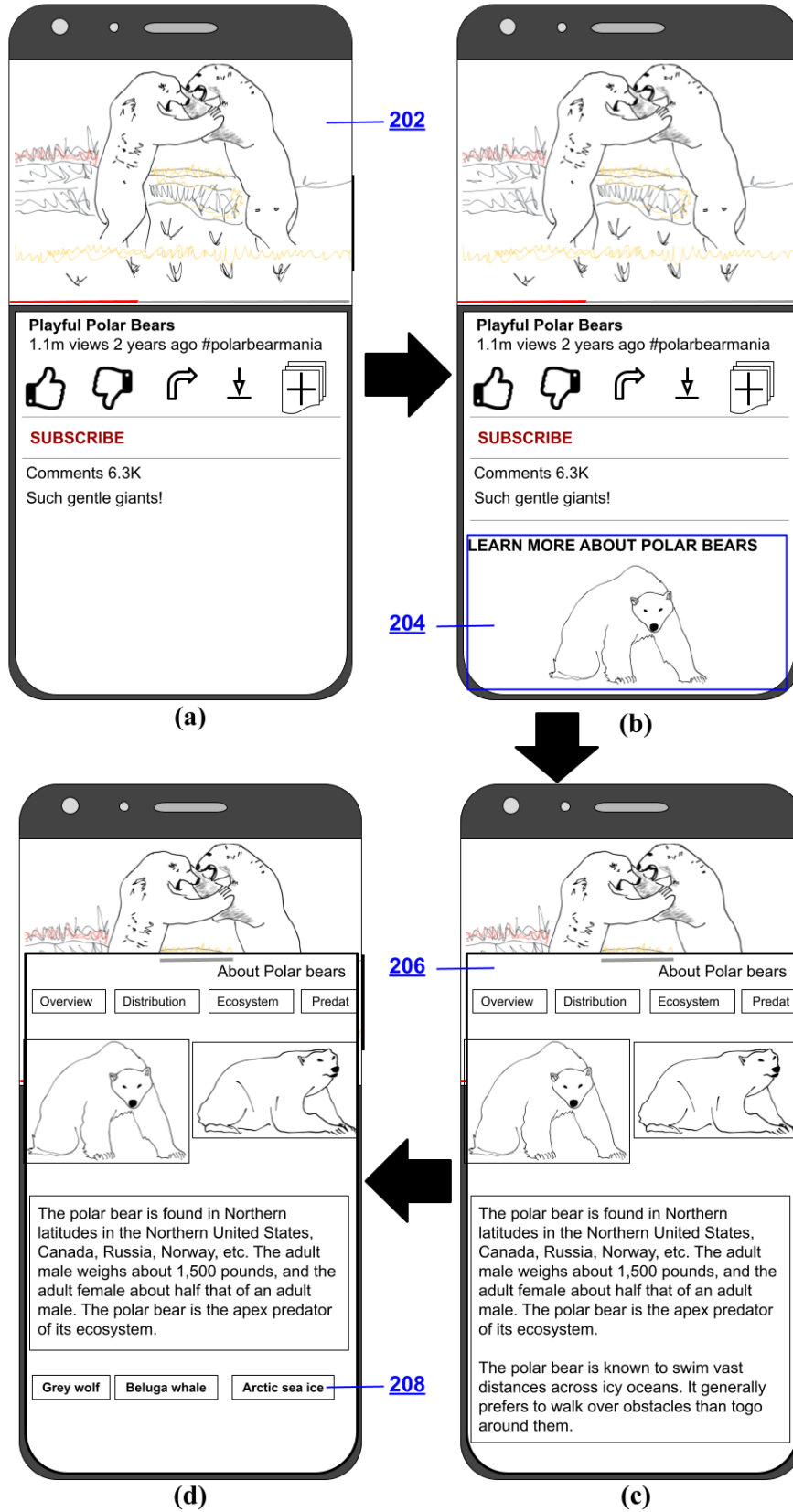


Fig. 2: Example user interface to display entity information within a video app

CONCLUSION

This disclosure describes machine learning techniques to automatically surface associated links for a video within a video player app and to automatically make curated content about entities in the video available for the user to explore within the video player app. By displaying entity information within the video app while video playback continues, the user is provided a seamless experience that does not disrupt the video watching experience.