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## Thumbnail Selection for Video Ads with Call-to-Action Buttons

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## **Thumbnail Selection for Video Ads with Call-to-Action Buttons**

### **ABSTRACT**

Current thumbnail selection techniques for video ads are based on content, e.g., saliency maps, faces, logos, etc., and quality, e.g., blurriness, presence of video-encoding artifacts, etc. While such techniques perform better than random selection or default selection of the first frame, these don't generally account for user activity or preferences. This disclosure describes techniques that leverage statistics of prior user interactions with call-to-action (CTA) buttons within video advertisements to guide the selection of thumbnails for the video ads. Thumbnails are selected from segments of a video ad where prior viewer data indicates a tendency to click the CTA button within the ad.

### **KEYWORDS**

- Video advertisement
- Video thumbnail
- Thumbnail selection
- Video search
- Video metadata
- Call-to-action (CTA)
- CTA button

### **BACKGROUND**

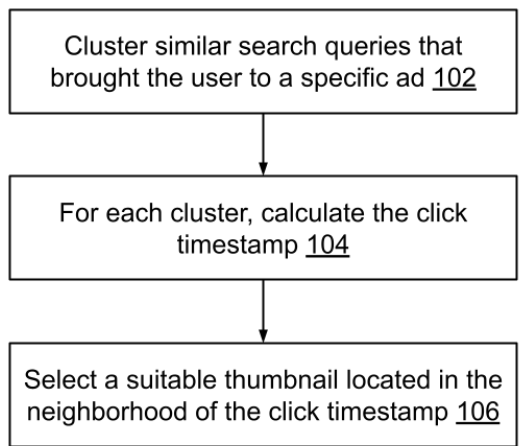
Video hosting/sharing websites provide search functionality that enables a user to perform a search. The results are typically provided in the form of a list of thumbnails of relevant videos alongside metadata such as video title and description. On many websites, search results may include organic videos as well as video advertisements in their entirety. Thumbnails are also included in the browsing interface for video websites or apps. Since thumbnails contribute substantially to a user's impression of the search results, it is important for video content to be represented by attractive and representative thumbnails. Many video ads include call-to-action

(CTA) buttons that invite users to perform an action such as visit the advertiser’s website, download an application, call a displayed number, etc.

Current thumbnail selection techniques for video ads are based on content, e.g., saliency maps, faces, logos, etc., and quality, e.g., blurriness, presence of video-encoding artifacts, etc. While such techniques perform better than random selection or default selection of the first frame, these don’t generally account for user activity or preferences.

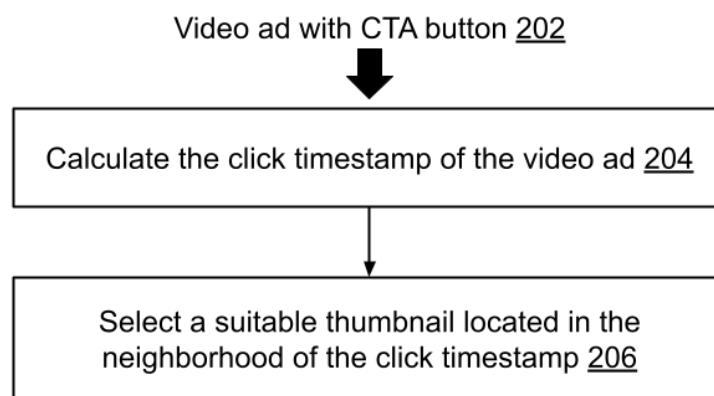
DESCRIPTION

This disclosure describes techniques that leverage statistics of prior user interactions with CTA buttons to guide the selection of thumbnails for video ads. The segment of the video ad for thumbnail extraction is identified based on the temporal distribution of users clicking the CTA button within the ad. Effectively, thumbnails are selected from segments of the video ad where prior viewers show a high tendency to click the CTA button within the ad. The described techniques can be combined with traditional techniques of thumbnail selection that are based on content or on additional signals/metadata available in video ads.



**Fig. 1: An example method of thumbnail selection for video ads with CTA buttons that is based on prior user activity**

Fig. 1 illustrates an example method of thumbnail selection for video ads with CTA buttons that is based on prior user activity. Similar search queries that brought users to a specific video ad are clustered (102). For each cluster, a click timestamp for the video ad is calculated, e.g., a timestamp after which a large (exceeding a threshold) percentage of users click on the video or its CTA button. A thumbnail selector is used to search for and select a suitable thumbnail located between shots in the neighborhood of the click timestamp (106). In the neighborhood of the click timestamp, the video is split into shots as necessary, and timestamps of shots are provided to the thumbnail selector. In this technique, the search query is mapped to the thumbnail of the video ad. For example, the search queries “football” and “basketball” may result in different thumbnails for the same video ad.



**Fig. 2: Another example technique of thumbnail selection for video ads with CTA buttons that is based on prior user activity**

Fig. 2 illustrates another example technique of thumbnail selection for video ads with CTA buttons that is based on user activity. Given a video ad with a CTA button (202), the click timestamp of the video is calculated (204), e.g., a timestamp after which a large (exceeding a threshold) percentage of users click on the video or its CTA button. A thumbnail selector is used to search for and select a suitable thumbnail located between shots in the neighborhood of the

click timestamp (206). In the neighborhood of the click timestamp, the video is split into shots as necessary, and timestamps of shots are provided to the thumbnail selector.

While both techniques for thumbnail selection based on user activity are generally applicable, the first technique (Fig. 1) is more suited to video ads with a large number of visitors (or views/CTA-clicks), while the second technique (Fig. 2) is more suited to video ads with a low-to-medium number of visitors (or views/CTA-clicks).

Alternatively, thumbnail selection can also be based on descriptive metadata accompanying the video ad. Metadata such as keywords, content of the image, etc., in and around the video segment that attracts the most CTA clicks are used to crawl through and obtain visual content from the advertiser, e.g., the advertiser's website. Such visual content, which shares descriptive metadata with the video segment, can then be used as the thumbnail that represents the video ad. For example, if the video ad is about a bicycle brand, and a threshold percentage of users click the CTA button in the video segment that describes a wheel technology for the bicycle, then the website of the bicycle brand is crawled for visual content relating to bicycle wheel technology. The visual content retrieved from the website is used as a thumbnail for the video ad.

## CONCLUSION

This disclosure describes techniques that leverage statistics of prior user interactions with call-to-action (CTA) buttons within video advertisements to guide the selection of thumbnails for the video ads. Thumbnails are selected from segments of a video ad where prior viewer data indicates a tendency to click the CTA button within the ad.